



The
**MODERN
HOSPITAL**

Vol. VI

January, 1916

No. 1

Influenza Serobacterin Mixed Mulford

For Immunization Against and Treatment of Influenza and Common Colds

A combination of sensitized killed bacteria prepared from cultures obtained from a large number of patients suffering with acute infections of the respiratory mucous membranes.

Influenza Serobacterin Mixed is employed in catarrhal conditions of the respiratory tract, for treatment and prevention. It may be used either before a cold is fully developed to abort it, during the height of a cold to hasten recovery, or between attacks for prevention.



The usual method of administering Serobacterins is to employ the 4-syringe package, beginning with one-fifth to the entire contents of Syringe A and following with other syringes at two to five-day intervals, according to indications.

Syringes contain killed sensitized bacteria as follows:

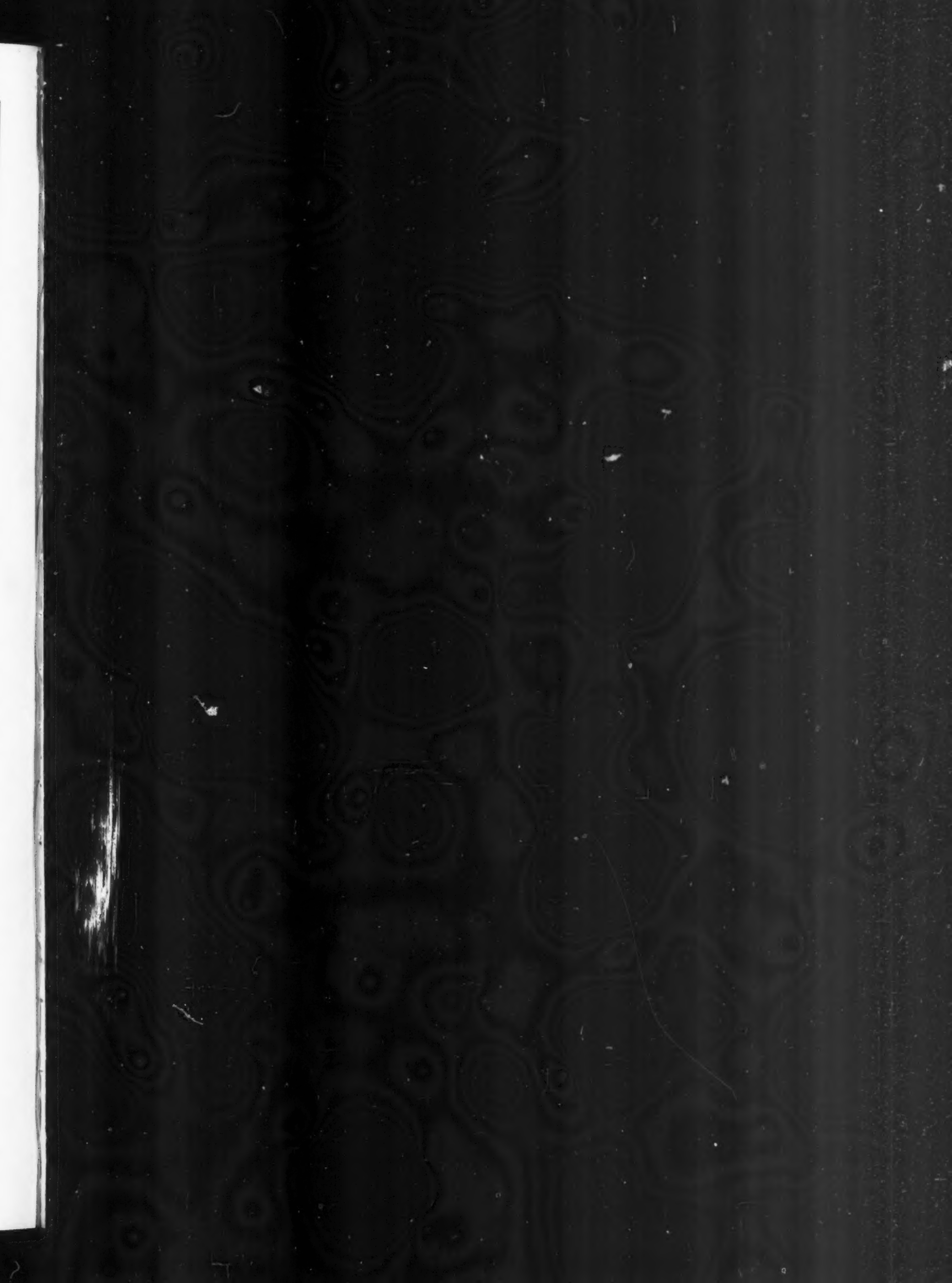
	Syringe A	Syringe B	Syringe C	Syringe D
B. influenzae	125	250	500	1000 million
Staphylococcus albus and aureus	250	500	1000	2000 million
Streptococcus	125	250	500	1000 million
Pneumococcus	125	250	500	1000 million
M. catarrhalis (group)	125	250	500	1000 million

Literature describing method of treatment and dosage sent on request.

H. K. MULFORD COMPANY

Manufacturing and Biological Chemists

HOME OFFICE AND LABORATORIES, PHILADELPHIA, U. S. A.





THE MODERN HOSPITAL

A Monthly Journal Devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and Allied Institutions, and to their Medical, Surgical, and Nursing Services

Vol. VI

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THE EDUCATIONAL FUNCTION OF THE HOSPITAL¹

Care of the Sick Only One of the Duties of the Modern Institution; the Education of Physicians, Nurses, Employees, Patients and the Public Quite as Important—Nurse Training Should Be More Rigidly Standardized

By WINFORD SMITH, M. D., SUPERINTENDENT OF THE JOHNS HOPKINS HOSPITAL, BALTIMORE

WRITING on the subject of education, Herbert Spencer said: "To prepare us for complete living is the function which education has to discharge." The old theory of education was that it was the acquisition of knowledge; the new theory, as promulgated by Spencer, is, that it is a training of the mental faculties, so that in addition to knowing about things, we are also taught how to accomplish things.

The first duty of the hospital is, of course, to provide for the care and treatment of its patients; but it also has a function beyond this, and that is educational. In the broadest sense, hospitals may be said to be educational to physicians, medical students, nurses, patients, employees and to the community. While the majority of hospitals are not so located as to be available for students of medicine, all hospitals to a certain extent are educational to the other classes mentioned.

In a very able address before the American Hospital Association in 1911, Mr. Abraham Flexner made the point that hospitals owed a duty to medical education, and unless they met that duty they failed to accomplish their greatest usefulness. He pointed out that many hospitals are so located as to be of great value to neighboring schools, in that it is possible for them to furnish to such schools the opportunity to study groups of patients with all of the possibilities of practical demonstrations and bedside instruction; and that in failing to meet the needs of such schools, they do not embrace the great opportunity of increasing

their own usefulness, both in the exercise of their primary function of caring for the sick and in the exercise of their educational function. He also pointed out that many other hospitals which place their facilities at the disposal of poor, unworthy schools, are likewise failing to meet their responsibilities in that they are fostering these poor schools and therefore poor medical education.

It is unquestionably true that hospitals are becoming each year more and more important factors in the preservation of the public health. There is a constantly growing appreciation of what the hospital means to those who are ill, of its responsibilities for educational work and for investigation and research, which, while not interfering with the actual care of the patients (the result being quite the contrary), present possibilities of a greater service to mankind generally. The hospital which welcomes teaching within its walls insures more careful methods, more careful study of the individual case, and, generally speaking, better and more thorough treatment for its patients.

In this country we have been surprisingly slow to grasp this fact, considering that the growth of the hospital movement has been so rapid. It is quite probable that the rapidity of hospital development in America has been largely responsible for the lack of appreciation of the larger opportunities. It was only a few years ago that the hospital in this country was considered the place of last resort. Today almost a complete reversal of opinion has taken place, and it is now considered the place of first resort for anyone who is seriously

¹Paper read before the National League of Nursing Education at San Francisco, June 26th, 1915.

ill. With this growing appreciation of the value of the hospital there has occurred a mushroom-like growth of hospitals, attended with all the evils of too rapid development—namely, lack of standards of organization and management, lack of standards as to support, poorly formulated plans, mismanagement and failure to comprehend the greater possibilities of the movement.

Within the last few years, however, there has come a broader conception of what the hospital stands for and of its greater usefulness. This is largely true because of the educational function of the hospital.

I have said that the hospital is educational to practically all who live and work within its walls, and to the community as well. Who can doubt that the employees working day after day in such an atmosphere must learn something of value in the way of helpfulness to others, something finer and broader by way of appreciation of life's problems, of human frailties, and of self-sacrificing service to others? Who can doubt that the patients, many of them at least, learn these same lessons, and at the same time learn how to take better care of their own bodies and how not to be a source of danger to others? These are phases of the educational function not often considered, but nevertheless important.

Of the more important phases, let us consider the education of medical students. In the so-called teaching hospitals, thousands of medical students are trained each year, both in theory and in practice. They are enabled to interview patients and thereby learn how to elicit the necessary information. They are taught what facts to emphasize and what to ignore, what to retain and what to discard. They learn how to examine a patient in order to bring out the abnormal conditions. They learn from the teacher and by actual experience how to recognize a condition and how to reason from the phenomena presented, back to the conditions underlying them. Furthermore, having learned at the bedside to recognize abnormal conditions, they learn also what is the proper therapeutic measure, and how to carry it out, which is quite as important. They are taught not only about a thing, but how to perceive the thing itself. The hospital, then, is the training school for thousands of young men, who go forth each year to give to their fellow man the benefit of that knowledge.

Again, every hospital has its resident staff, numbering all the way from one to a hundred. These young men, already recognized as physicians, continue for one or more years to serve the hospital in order to acquire additional skill in diagnosis, in treatment, in operative technic and in

powers of observation and reasoning. Then, too, there is the senior staff of physicians and surgeons, who, by the study of large groups of patients, by the experience gained in operating upon large numbers of patients, acquire a skill and technic which make them authorities in their subjects and leaders in their profession.

In the laboratories, also, are those men who devote their lives to careful routine study of all conditions found, to constant experimental work, as the result of which new facts are being discovered which add to the knowledge of disease and the methods of combating it. All of this means progress and benefit to mankind.

To the community in which such an institution is located it has an enormous educational value. The effect which the standards and principles of such an institution have on a community, the development of public interest in these principles, the efforts of this group of thoughtful, earnest, skilful workers cannot fail to have a very practical value in the development of public hygiene, better sanitation, better living conditions, and a higher plane of existence.

I am aware that I am telling you nothing new, that, in fact, I am only repeating in a little different form what has been said over and over again. Nevertheless, it seems to me that it bears repetition, for the true value of the hospital, in the broadest sense, is not yet generally recognized.

There remains one, a most important, phase of the educational function of the hospital—I might say the most important phase—namely, the education of the nurse. I wish to dwell at some length on this subject, because of the need of a more accurate perception of its possibilities. The training school for nurses represents one of the most important departments of the hospital, both because of its function in nursing the patients and because of the public demand for trained nurses.

It is an interesting fact that those who organized some of the early schools had a much better conception of the need of nurse training schools, as educational institutions, than those who are responsible for the majority of the schools of the present day. For example, in the report of the Training School Committee of the Bellevue School, which was one of the earliest schools established in this country (probably the second), we read the following inspiring and far-sighted statement of their aims:

"In course of time we propose to benefit not only Bellevue, but all the public hospitals, and also to train nurses for the sick in private houses and for work among the poor.

"As the work advances, we hope to establish a college for the training of nurses which will receive a charter from the state and become a recognized institution in the

country. Branches of this college would be established in connection with hospitals devoted to particular diseases, such as the Woman's Hospital, etc., so that in course of time nurses trained for the treatment of special diseases will be as easily obtainable as physicians. Connected with the college would be a home for nurses, whence they would be supplied with employment and provision made for them when ill or disabled by labor or advancing years. The nurses when trained would receive a diploma or certificate, renewable at fixed periods. Thus the college would control their nurses during their state of pupillage and protect the public from imposition by making it known that a nurse whose diploma or certificate was not in due form had forfeited the confidence of the institution.

"The work before us is not an inexpensive one. It should not be regarded merely in the light of a work of benevolence, but as a system of education, calculated to benefit thousands in all ranks of life, and, like the quality of mercy, blessing him that gives and him that takes."

Not many training schools for nurses have been started with such a broad conception of the needs, the aims or the value of such a school, as an educational institution. I have said that the growth of the hospital movement has been remarkable. The growth of the nurse training school movement has been equally rapid, for the two have developed together. To this fact we must attribute many of the difficulties which now attend every effort to standardize these schools and to raise the standard of nursing.

To be more explicit, practically every hospital of any size has its training school for nurses. In the majority of these instances the hospital has established the school, not with any deep-rooted desire to train nurses for the purpose of serving the public generally, or because of any particular interest in education along this or any other line, but with one idea paramount—to get the nursing work of the hospital done in the simplest and cheapest possible manner. Even a superficial study of the situation will convince one that this is not an exaggeration, and that the majority of boards of trustees, medical boards or ladies' committees, have no conception of the great part which the nurse is playing today in all humanitarian work, nor of the increased demand for educated, thoroughly trained nurses for all phases of public health work. They think of her only as the pupil and as the private nurse.

Many of these schools, I am almost tempted to say the majority, have standards of admission too low or too elastic, have courses of instruction too meager and too spasmodic, and subordinate too completely the interests of the school, as a school, to the practical needs of the hospital. This does not accord with my idea of the educational function of the hospital. The point has been made by Mr. Flexner that hospitals owe a duty to medical education, and we heartily agree with him. I would also make the point that hospitals owe a

duty to nursing education, and that this is particularly a function of the hospital.

That the trained physician and surgeon play a very important part in the general scheme of life none will deny. Does anyone believe that the physician and surgeon could begin to do the splendid work which they are doing today without the trained nurse? Without detracting one whit from the credit due the physician and surgeon, we must admit that medical and surgical technic would hardly be what it is today had it not been for the development of the trained nurse to supplement his work and to assist him in carrying out the complicated and technical procedures of modern practice. That good nursing is often quite as essential as good medical attention, and that it is often equally responsible for a favorable result, none will deny. Furthermore, the better trained a pupil is the better nurse she will be. A nurse cannot be overtrained any more than a physician can be overtrained.

If the hospital owes a duty to medical education, it also owes a duty to nursing education, for the same reason applies, namely, the need of such education in the interest of humanity. Only a few hospitals are available for teaching medical students, while many hospitals can educate nurses, and every hospital large enough to support properly, and which properly conducts, a training school, renders a great public service by so doing.

The trained nurse is now called upon to perform work which was never contemplated in the beginning. Even the broadest conception did not in the early days conceive of a service much wider than that of skilled attendance upon the sick. In the present day, however, she is a therapeutic agent of great value. She is called upon in almost every phase of our civic and social life to organize, to systematize and to teach, as the private nurse, the visiting nurse, the school nurse, the health department nurse, the rural nurse, sanitary inspector, etc.

Professor C. E. A. Winslow, of the College of the City of New York, writing on the education of the public health nurse, says:

"We need expert sanitary engineers to build and operate our public works; we need sanitary physicians to deal with the broader communal aspects of the spread of communicable disease; we need sanitary bacteriologists and chemists and statisticians to furnish the special expert knowledge by which all these activities must be guided. More than all, however, we need large bodies of sanitary educators to bring our knowledge to bear on the individual citizen who alone can make so much of it effective. Some of these missionaries of sanitation will be physicians, but most of them will be nurses. And that is why, in my judgment, the visiting nurse is the most important figure in the modern movement for the protection of the public health."

Dr. J. H. Mason Knox, late president of the American Association for the Study and Prevention of Infant Mortality, writes as follows:

"In the last analysis, however, all our work hinges upon the better care of individual babies coming under our influence, and it is here that the trained nurse should be given first place, both because of her unique opportunities and because of the good results which she has accomplished and does accomplish."

Testimony of this character can be quoted *ad infinitum*.

Recognizing, then, the desirability and the necessity of training nurses, we may ask, is this the function of the hospital? I believe it is distinctly and peculiarly the function of the hospital. I have never been able to believe in the idea of a detached central school, where the pupils will receive their preparatory and theoretical training, and from which they may be sent out to hospitals on assignment, to receive their final and practical training. Such a plan can undoubtedly be made to work, but in my opinion is not ideal. Experience in medical education should teach us that. The medical school which gives the first two years in one place and the last two in another is not as desirable as the one (all other things being equal) which enables the student to spend all four years in the same environment. It is not as good for the student and is not as healthful for the development of the school itself. The same principle applies to the training school for nurses.

The training school for nurses, as well as the medical school, must have the facilities for practical training and actual experience in order that the education may be well rounded and complete. Hospitals exist to serve the public. In the broadest sense, then, the hospital should develop along all lines which tend to public service, which are related to public health, and which do not interfere with its primary purpose. In no other way can it attain its fullest efficiency. There are many hospitals, as we all know, which are now exercising this function. In fact, to a greater or lesser extent, they all do. There is, however, a need of standards, else there is danger that the profession of nursing will become filled with quacks; that the public will be led to accept poor service when the best is needed; that worthy young women will be misled into believing that they are to receive a thorough training, when they are offered only an imitation and superficial training, for which they must give from one to three years of hard, faithful, honest service; danger that the vast possibilities for public service by a profession of skilled workers may be lost because of the failure to foster the growth of this profession and to protect it from commercialism and low standards.

What are the standards needed? In the first place, it should be recognized that this movement which started out simply to meet a hospital need has developed into an educational movement, in response to a vastly more important and vastly broader need of the public at large. In order to safeguard this movement, therefore, each state should standardize its training schools for nurses, and registration should be compulsory, as with the physician.

In order that their graduates may be eligible for registration, schools should be obliged to adopt a fairly uniform curriculum, and to give training in all necessary subjects, or else affiliate with other recognized schools capable of supplying training in the subjects in which the weaker school is deficient. Only those hospitals which have more than a minimum number of beds and which are so-called general hospitals should be recognized as capable of conducting training schools.

Compulsory registration is likewise important; in my opinion, quite as important as for physicians. These are fundamentals and can be met by legislation. In order to insure the educational machinery, endowments for schools are extremely desirable; or at least a certain definite budget should be set aside for strictly school purposes.

Many arguments are heard against such measures, as, for instance, the difficulty of getting a sufficient number of nurses to carry on the work of the hospital, and the need of cheaper nursing service for people of moderate means. With regard to the first, it has not yet been demonstrated that raising the standard of the profession would not attract more applicants to the schools. If such did not prove to be the case, then the training of nurse assistants, or attendants, would undoubtedly meet the situation.

As for the second argument—the need of cheaper service—the same can be said of physicians, yet we are constantly raising the requirements of medical schools and are now considering the desirability of a fifth or hospital intern year, before allowing the physician to practice. We would not think of recommending half-trained physicians. Then why consider half-trained nurses?

In closing, I wish to repeat that in my opinion it is high time that the medical profession and the public should recognize the importance of high standards in the education of the nurse, and should demand compulsory registration for the nurse, as well as for the physician, the pharmacist, the dentist, the osteopath, and the barber. The hospital should play an important part in all of these movements.



Fig. 1. General view of entire sewage plant, State Hospital, Warren, Pa. Retaining walls of filter built of concrete blocks, laid so that air is admitted to body of filter through open spaces.

TREATMENT OF HOSPITAL SEWAGE IN AN INDIVIDUAL PLANT

Septic Tank Treatment Has Given Way to the Imhoff System—A Different Principle Involved—The Plant at the Warren (Pa.) State Hospital

BY P. E. MEBUS, C. E., DESIGNING ENGINEER FOR ALBRIGHT & MEBUS, PHILADELPHIA.

IN recent years, the legislatures of a number of states have made laws and regulations for preserving the purity of the natural water courses. In 1905, the Pennsylvania legislature enacted such a law, creating the state department of health and making it mandatory for all matters pertaining to sewerage and sewage treatment to be referred to the commissioner of health for approval. Municipalities at once pointed out that the state itself, through its large institutions, was one of the worst offenders in the matter of stream pollution. At subsequent sessions of the legislature, steps were taken to instal sewage treatment plants at all state institutions, thereby setting an example both for municipalities and individuals. The high standards of purity for effluents, which have been established by the department, have resulted in developing the type of plant described herein.

The treatment of hospital and sanatorium sewage is hence an important matter to the administrative authorities, as such sewage will usually contain a relatively higher percentage of pathogenic organisms than ordinary municipal sewage. To secure satisfactory results, each situation should be placed in the hands of sanitarians who are experts in such matters. Their duties should be to study carefully the conditions; to design and superintend the construction of the treatment plant, and to supervise its operation; and it is only by a combination of these three duties that success will be attained. To a

hospital or a sanatorium, the successful purification of its sewage should be as much of an asset as the good quality of its water supply.

Sewage treatment consists essentially of three fundamental processes, viz.: removal of solids, oxidization, and sterilization. The first is accomplished by screening and by sedimentation, both methods being usually found in modern plants. The function of screens is to remove only the larger and non-putrescible matter, such as rags, brushes, etc., and allow the fecal matter and all other putrescible matter to pass into the sedimentation tanks, where it will settle out and, if retained for a sufficiently long period, be decomposed. The remaining liquid, containing organic matter, both in suspension in a comminuted state and in solution, must next be mineralized, so that



Fig. 2. View of percolating filter during construction.

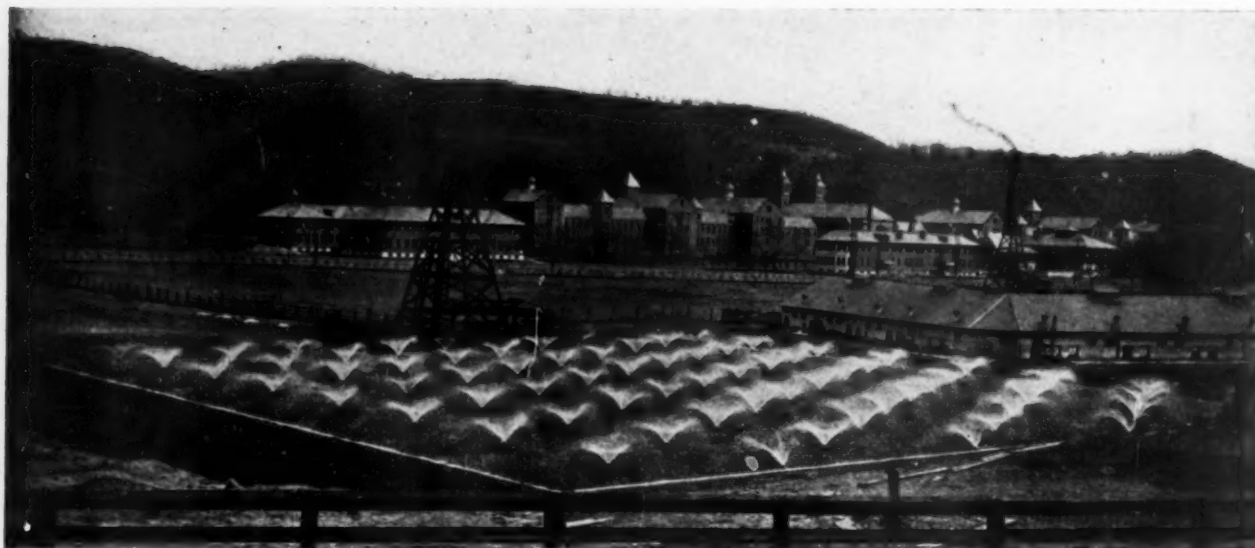


Fig. 3. Percolating filter in operation. Pig pens adjacent to filter. Hospital buildings in background.

it may be non-putrescible. These processes, however, do not remove all of the bacteria, so that the third process, sterilization, is necessary to remove these residual and more resistant organisms.

The state hospital for the insane of the north-western district of Pennsylvania, is located in Warren County, about three miles north of the Borough of Warren. About 1,500 inmates, together with 300 employees, constitute the entire population. The daily quantity of sewage amounts to about 270,000 gallons, or 150 gallons per capita. This sewage is collected by a system of 8-inch vitrified pipe sewers and carried to a pumping station, from which it is pumped to the treatment plant. All storm water and surface drainage is cared for by a separate sewer system. While making the studies for determining the best methods for treating the sewage it was found that there were only two sites available for building a

plant; one, on an island in the Connewango Creek, and the other, on higher ground, about one-quarter of a mile to the west of the main wards. The former, although permitting of a gravity flow plant, had the disadvantage of being located only about 100 feet from the main highway, and of being flooded at high water, with all the consequent damage. The other site, necessarily chosen, was well adapted to the purpose, but required pumping the sewage.

Pump House. The pump house is built of reinforced concrete and brick, and conforms architecturally to the buildings of the hospital group. The house contains vertical type centrifugal pumps, driven by electric motors, the starting and stopping of which are automatically controlled by float switches, actuated by the rise and fall of the sewage in the collecting well located under the floor; i. e., when the surface of the sewage in the well reaches certain predetermined levels, the pumps are automatically started or stopped, as the case may be. With this arrangement, the greatest economy results, as only occasional attention is necessary for oiling and inspection. In order to avoid pump clogging, the sewage is passed through a screen chamber adjacent to the house, containing inclined bar screens with $\frac{3}{4}$ -inch clear openings.

Sedimentation Tanks. Until recently, the accepted method of clarifying sewage was by means of the so-called "septic tanks," consisting merely of a plain concrete basin, whose size was sufficient to hold about one-half day's sewage flow. In these tanks the solids settled, were deposited on the bottom and



Fig. 4. Percolating filter operating in January, 1915. Temperature at 7:30 a. m. was 24° below zero. Photograph was taken in afternoon.

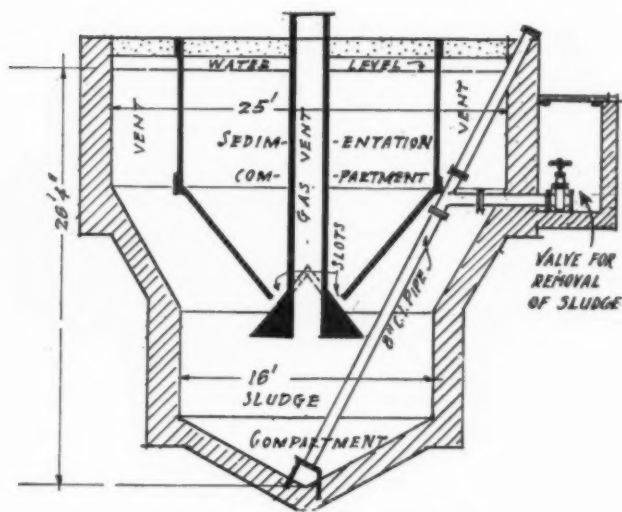


Fig. 5. Imhoff tank. Sectional elevation.

left to decompose. The gases arising from the decomposition carried large quantities of the already deposited solids up through the incoming sewage. Furthermore, much of the gas was hydrogen-sulphide, and was absorbed by the supernatant liquid, which in turn became septic. When this liquid was applied to the filters, especially in the form of spray, the odors were very annoying. The newer theories and their results present a strong contrast to the older methods.

The sedimentation tanks are now built, having two compartments, one above the other; the upper one—made about one-fifth as large as formerly—being utilized for sedimentation, and the lower one for the decomposition of the deposited solids. The bottoms of the upper compartment are inclined sufficiently to permit the solids sliding down their surfaces and passing through a slot into the lower compartment. The slot or opening is furthermore trapped so that the rising gases and solids pass into vent chambers, and do not permeate the fresh, incoming sewage. This type of tank is known as the Imhoff tank, being invented and perfected by a German engineer, Dr. Karl Imhoff. It has been used rather extensively and successfully, both in Germany and in America. This tank has many advantages, among them being the maintaining of the sewage in a fresh or non-septic condition, thereby facilitating its further treatment, and the production of a better sludge,—the technical name for the deposited solids. The tanks being necessarily deeper than the "septic tanks," subject the sludge to greater pressure, so that much of the gas produced is retained in the sludge, which makes it light and porous and at the same time reduces its water content, and consequently its bulk—thus facilitating its drying and ultimate disposal. In explanation it may be stated that septic tank sludge has an average water content of 92 percent, while Imhoff tank

sludge contains at the most 80 percent water, corresponding to a 60 percent reduction in bulk. Also in a properly designed Imhoff tank, correctly operated, 98 percent of the gases produced consists of inodorous gases, viz.: methane, carbon-dioxide and hydrogen.

A reinforced concrete tank of this type has been constructed in connection with the Warren Hospital plant. It is shown in Figs. 5 and 6.

Syphon Chamber. The effluent from the Imhoff tank, practically freed from solids, flows to the syphon chamber, from which it is automatically discharged into cast iron distributing pipes, supplying 72 regularly spaced nozzles, which spray it over the surface of the filtering medium.

Percolating Filter. The filtering medium consists of crushed limestone, 2-inch to 3½-inch sizes, and rests on a cement floor, covered with semicircular cement underdrains. These stones are covered with a jelly-like layer of nitrifying bacteria which oxidize the organic matter in the liquid while it is passing over them, so that the effluent is rendered a non-putrescent liquid, with a greatly decreased bacterial content, indicated by the appended table.

Chemical House. To best effect the removal of the more resistant residual organisms, among them being the B. Coli. types, it is necessary to add a germicide to the liquid, the most common being an aqueous solution of hypochlorite of lime containing available chlorine. Its best recommendations are, the rapidity of its action—the author's experiments at the Philadelphia

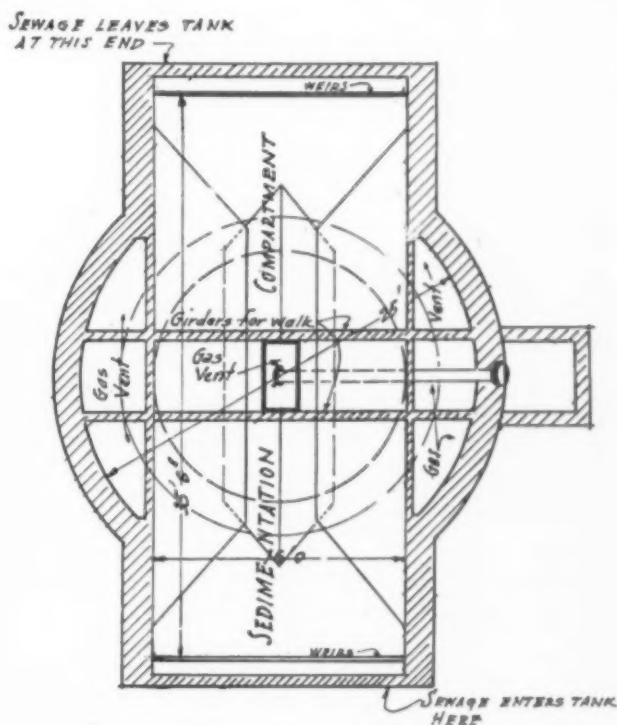


Fig. 6. Imhoff tank. Plan.

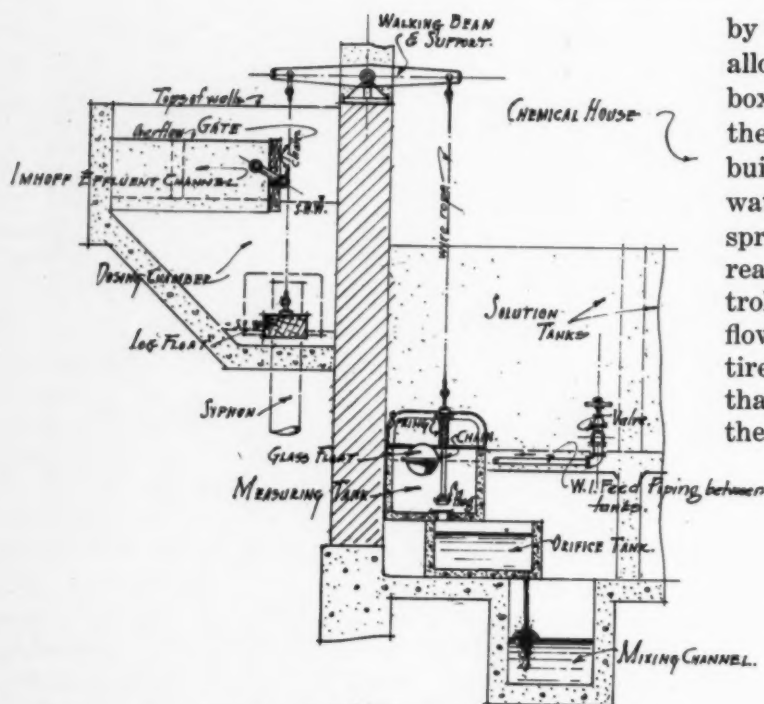


Fig. 7. Diagrammatic section, illustrating operation of automatic hypo feed apparatus. (Dosing and measuring tanks empty orifice tank, feeding solution to effluent.)

Testing Station showing very efficient disinfection in 10 minutes—and its low cost, being about 2c a pound. Chlorine gas, requiring a special apparatus for adding it to the sewage, has recently been placed on the market, and has already been very successfully used at several places. The results obtained are identical with those obtained with the former method, and its cleanliness and facility of handling are strong points in its favor.

At the Warren plant, the first mentioned method is in use, together with a unique device to proportion the chlorine to the sewage flow. This device is shown diagrammatically in Fig. 7. Its operation is as follows: The log float in the syphon chamber falls with the water-level, there-

by lifting the plug of the measuring tank and allowing the contents to flow into the orifice box, from which it is slowly discharged into the filter effluent as it passes through the building. The log float again rises with the water-level, the plug is forced to its seat by a spring, and the measuring tank is again filled ready for the next cycle. A float valve controlled by a glass float prevents this tank overflowing. Should the flow of sewage cease entirely, no chlorine solution would be added, so that besides adding the solution in a ratio to the sewage flow, it is also economical in that no solution is allowed to flow to waste. About two parts per million of available chlorine are added to the filter effluent to secure efficient disinfection. All the apparatus and tanks are housed in a small building 14 feet square.

Secondary Sedimentation Tank. A secondary sedimentation tank has been installed, to insure a thorough mixing of the chlorine and sewage and to permit some additional solids to settle out. The effluent of this tank, now a non-putrescent liquor and practically free of bacteria, flows to the aforementioned Connewango Creek, which, from a sanitary viewpoint, is not in nearly as good condition as the effluent. (See table.)

Costs, Personnel, etc. The cost of the plant, together with about 1¾ miles of vitrified pipe sewers, was \$37,856. The operation of the plant has been very satisfactory and has fully met the rigid requirements of the state department of health. No odors are noticeable either at the pump house or the treatment plant. The consulting engineers were Albright & Mebus, of Philadelphia, Pa.

REPORTS OF BACTERIOLOGICAL ANALYSES
WARREN STATE HOSPITAL, 1915

Date	Crude Sewage		Settled Sewage Bacteria		Perc. Filtr. Effluent		Final Effluent		*Creek Water		Percentage removal by perc. filter, based on settled sewage	
	Bacteria c. c.	B. Coli.	Bact. c. c.	B. Coli.	Bact. c. c.	B. Coli.	Bact. c. c.	B. Coli.	Bact. c. c.	B. Coli.	Bact. c. c.	B. Coli.
January 7	1,458,000	162,000	594,000	144,000	78,000	6,400	72	0	840	8	87	95
January 14	1,134,000	147,000	567,000	133,000	96,000	8,640	38	0	248	33	83	93
January 21	594,000	78,000	918,000	120,000	270,000	48,000	9	0	208	42	75	60
January 28	756,000	90,000	594,000	216,000	108,000	1,980	48	0	600	96	82	99
February 4	594,000	216,000	324,000	4,800	66,000	1,200	48	0	660	12	79	75
February 18	600,000	300,000	310,000	8,200	64,000	1,100	28	0	—	—	79	87
March 2	1,008,000	378,000	756,000	126,000	54,000	—	72	0	—	—	92	—
March 8	1,188,000	151,200	702,000	252,000	13,500	2,520	15,520	120	—	—	98	99
March 15	810,000	198,000	594,000	94,500	54,000	2,340	4	0	—	—	91	97
March 22	—	—	540,000	48,000	1,674,000	52,000	48	0	—	—	—	—
March 29	378,000	35,000	308,000	18,000	30,400	6,400	9	0	23,670	1,428	90	65
April 6	4,685,000	3,725,000	162,000	67,500	42,000	2,700	120	0	—	—	74	96
April 12	587,000	24,500	864,000	30,000	60,000	4,000	64	0	—	—	93	87
April 19	1,008,000	105,000	756,000	84,000	36,000	4,860	72	0	360	39	95	94
April 26	252,000	3,000	396,000	144,000	114,000	1,200	152	0	—	—	71	99+
May 3	1,296,000	270,000	810,000	252,000	72,000	5,600	240	0	—	—	91	98
May 10	378,000	105,000	252,000	66,000	66,000	5,940	420	1	—	—	74	91
May 17	1,674,000	432,000	702,000	66,000	126,000	2,160	9,660	3	3,420	1	82	96
May 24	810,000	162,000	2,484,000	186,000	48,000	1,200	88	0	—	—	97	99

*Above sewage plant outfall.

(a) Probable contamination of sample.

MOTOR BUS TRANSPORTATION OF THE SICK TO THE COUNTRY

Burke Foundation Relates Experience During the Past Summer That Must Have Great Bearing on Country Branch Hospitals—Occasional Relapses and Complications Due to the Ride—Some Details of the Experiment

BY DR. FREDERIC BRUSH, SUPERINTENDENT

THE Burke Foundation has transported 2,000 patients to and from New York City by means of a single motor bus during the past six months. A few overflow patients have used the railroad.

The problem was somewhat new. Professors in the physical department of a great university said that not more than seven adults per car could

The view is unobstructed even in front, and the driver has full control of passengers. No nurse is sent; an intelligent patient is made "captain," and with the driver attends to the "little things that help," on the way. Patients generally consider the ride the most pleasant part of the convalescence.

The car makes four round trips per week; the distance of the round trip is fifty-four miles; the total distance covered to date is 6,500 miles; four miles to a gallon of gas, two blow-outs and eight punctures; the cost of the round trip is 63 cents per patient (including all except depreciation), which is just equal to electric road rates and half regular steam road rates here.

This car is being put to other uses, such as carrying large groups of visitors, entertainers,

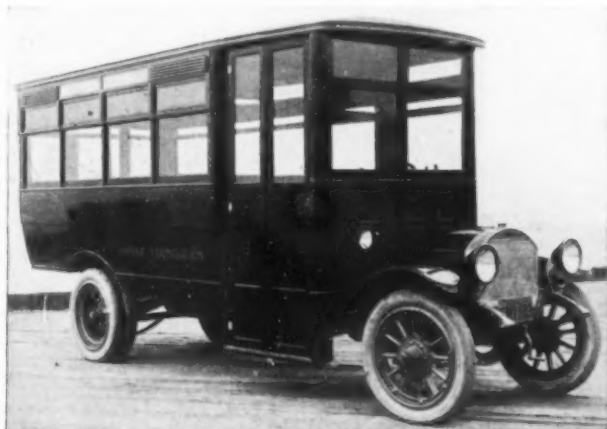


Fig. 1. Motor bus of the Burke Foundation, used to transport patients to and from the White Plains Convalescent Hospital.

be carried successfully on *pneumatic tires* under our conditions of steady service, distance, roads, etc. The makers of cars set the maximum at twelve to fourteen. We had a bus built by the International Motor Co. to seat sixteen to eighteen besides the driver, and to carry a packed suitcase for each. (Even greater capacity will be tried for next time.)

Success was due to the fact that we departed from the idea of using a pleasure-car chassis, and built a special body upon a standard commercial truck 1½-ton chassis, with some modification of springs, etc. The car has single front tires and dual rears (standard pneumatic); the body is nearly seven feet wide inside (leg room), and the construction is that of a Pullman car, with baggage racks overhead, etc.

It was important to get (and this was attended with some difficulty) high and very sloping-backed, deeply upholstered seats, which should set low, pitch backward and be wide enough to take a reclining patient in case of need. Two or three folding stools give seats to other patients in the aisle when someone has to lie down. Extra loose cushions help to comfort. Very rarely has a patient needed to recline.



Fig. 2. The interior of the motor bus used by the Burke Foundation. Emergency door in rear; entrance front.

athletic teams, and patients for short pleasure rides. We are now building a twelve-passenger, smaller bus, for special ambulance service and auxiliary uses, as in difficult storm and road conditions, and for carrying very sick patients to hos-

pitals, etc. Its side seats will adjust for three reclining persons, and room for nurse.

Yet we are learning that such transportation has its dangers and limitations. The trip one way is now made in about 1½ hours, but patients tire rapidly toward the end; it would be better if the distance were under twenty-five miles. Three patients have apparently been made very seriously ill by the ride, and probably one hundred others (surgical mainly) have complained of added soreness, pain, etc., which could fairly be laid to this cause; nephrectomy, tuberculous kidney, pyelitis, recent gastro-enterostomy, arthritis, the recent larger abdominal operations, and certain other like conditions make up this list, and we are learning to send some tender patients by train, in rare instances.

This experience, though limited as yet, has an important bearing upon the recurring question of the feasibility of the country branch hospital. Certainly the impression is growing upon us that

the transportation of sick and of very recently operated persons, in numbers, to considerable distances, should be entered upon with most careful experiment and supervision. As one example, the experience of convalescent homes of this vicinity (now largely augmented by our own) is that those suffering from rheumatic fever and heart disease relapse (soon after arrival) in the convalescent institutions much more frequently than when these patients are kept longer in hospitals, or in their homes. This is, of course, serious. Various causes have been sought for this occasional unfortunate outcome, but it seems to come back mainly to the mere *change*. Other conditions of illness are likewise unfavorably affected by the radical change of environment.

It is proving that patients may sometimes be sent too soon to the standard convalescent home. And the branch hospital will require much more the new standards of selection of patients, and of transportation.

DANGERS OF THE CONTINUOUS BATH

Patience and Tact and the Constant Presence of the Nurse Make Restraint Unnecessary —Method of Procedure at the Government Hospital for the Insane

By WILLIAM A. WHITE, M. D., SUPERINTENDENT OF THE GOVERNMENT HOSPITAL FOR THE INSANE,
WASHINGTON, D. C.

I AM prompted to write these few words of warning by having recently noted that in a sister institution a patient was scalded to death in the continuous bath. It is not altogether clear from the account that I saw of this accident what happened, but I suspect very strongly that the patient was fastened in the tub and during the few minutes' absence of the nurse to attend to pressing duties elsewhere the water suddenly raised in temperature and the patient was unable to escape.

This brought home to me in a most emphatic manner the error of what I believe to be an entirely wrong practice which has grown up in connection with the continuous bath. In my visits to the various institutions I have noted, I might almost say a universal practice, of fastening the disturbed patient in the tub. There are various devices for doing this; the most common one is the canvas sheet, which is fastened over the top of the tub usually by straps which go under the bottom of the tub and are therefore inaccessible to the patient.

Another method which I have seen is by the combination of canvas sheet and camisole, the sheet being fastened over the tub and the camisole receiving the arms of the patient. Any of these devices makes such an accident as I have above mentioned a possibility.

Devices for securing even temperatures of water may get out of order and cause the water suddenly to heat, and if this should happen while the nurse is absent from the room, as sometimes she may be from force of circumstances, even though instructed to the contrary, an accident may happen. I think the only adequate precaution to take against this type of accident is to insist that under no circumstances is a patient to be fastened in the continuous bath.

The practice of fastening patients in the tub has grown up perfectly naturally. Disturbed patients make a great fuss on first getting into the bath, splash the water about, pull the plug, and in general make that sort of disturbance which suggests the necessity of restraint. We have been using the continuous bath at the Government Hospital, however, for a number of years, and we have never used restraint, and do not permit it under any circumstances; and still we bathe all of the various classes of patients that are received in any hospital—the acutely disturbed, confused and delirious patients that require this sort of treatment. I am therefore convinced that restraint under these circumstances, aside from being dangerous, is unnecessary.

If, however, restraint is not resorted to, considerable patience and some tact is needed to handle

disturbed patients when the continuous bath is first used. In other words, if we would do away with a crude and useless device, which is nothing but a makeshift and an excuse for a lack of exertion, something has to be done, some patience and intelligent effort has to be exercised. This is the price that has to be paid if we are going to deal with the matter more efficiently.

When the patient is first taken to the continuous bath and is very much disturbed it is often necessary to have two or three nurses to help get him in the tub. Sometimes he will not stay there. Under these circumstances it is not well to insist too strenuously, as the patient does not always understand what is expected. Make the effort for perhaps 20 minutes and then drop the matter and try it again later on the same day, or perhaps not until the next day. As soon as the patient realizes that he is not going to be injured or drowned and that nothing terrible is going to happen to him he will usually take to the bath kindly, and when he once experiences the soothing effect of the warm water he is generally pretty glad to remain in it. This may take three or four days of what one might call educational training, but this is worth while, not only to avoid the sort of accident that prompted this article, but because it is better for the patient to treat him reasonably than it is to overpower him and tie him up in a situation which he does not understand, which often terrifies him, and therefore ruins the whole effect of the therapeutic measure.

Neither should so much stress be laid upon patients not getting out of the tub. A disturbed patient, if left to himself, will often get out of the tub and run about the room in a typical maniacal fashion, but before he has been out of the tub but a few moments he becomes chilled and uncomfortable, and as a rule is glad to get back in the water. In the great majority of cases he will go back of his own accord in a few minutes if left alone, and he should always be allowed to do this rather than forced to go back, with the consequent conflict between the patient and the nurse.

In hospitals where there are male physicians in charge, and even otherwise, depending upon the case, it is well that women patients especially should be partly clothed, either in a light undershirt, or chemise coming down to the knees, or a nightgown. This can be supplemented, if desirable, by taking an ordinary sheet and throwing it over the top of the tub, so that the patient feels that he or she is not exposed, even though impelled by excitement to get out of the tub.

I have also noted in this connection a practice which I hope this article may help to counteract among manufacturers who furnish continuous

bath outfits for hospitals. The literature which they send out and which contains photographs shows the use of restraint apparatus. Inasmuch as the continuous bath is being constantly installed in institutions which have had no previous experience or knowledge of it, I have no doubt that this method of advertising has had much to do with the use of restraint. Manufacturers are undoubtedly anxious to provide what is wanted and what is best, and I am sure that if they can be made to understand the real danger of the use of restraint they will cease to advertise in this way.

In addition to the absolute rule that no patient is to be restrained we have recently installed at the Government Hospital regulating valves in connection with the continuous baths, which are permanently and unalterably set so that no water can be admitted to the baths at a temperature higher than that at which the valves are set. These valves we set at a temperature of 110° F. The principle upon which they operate is a simple one and they would seem to be very safe. All mechanical contrivances, however, are likely to go wrong at some time, and, although they afford an added safety, still the nurse should never be permitted to leave the room, and should gain her knowledge of the temperature of the water from a bath thermometer and also from frequently plunging her hand and arm into the bath. It is also highly desirable that the continuous bath should be so located that the nurse should not be under any temptation at any time to leave it, and should not be subject to call.

Of all these precautions, however, the fundamental one and the most important is that the patient should not be restrained, because no person, no matter what his or her mental condition, unless seriously crippled, will scald to death in a continuous bath tub if free to get out. Even the most actively excited and confused will jump out of the bath tub if the water is hot. The reaction is too deeply biological to be seriously disturbed by mental clouding.

A new home for the Emergency Hospital, Easton, Md., has recently been completed. It is a three-story brick structure, with stone trimmings, and is of the colonial type of architecture. The cost of the building was \$50,000. Fifty patients will be accommodated. The hospital contains a maternity ward, a children's ward, an invalid ward, diet kitchens, two operating rooms, an accident room, dispensaries, a laboratory and an x-ray room, and is modernly equipped throughout. The plans for the building were drawn by Architects Guy King & Co., Philadelphia.

The trustees of the New York Medical College and Hospital for Women, New York City, contemplate the erection of a \$200,000 hospital building within the next year. A campaign to raise the money for this undertaking will be the first step in a movement for a combined building and endowment fund of \$1,000,000.



Fig. 1. Walker Hospital, Evansville, Ind. The laboratory.

A HOSPITAL OWNED AND CONTROLLED BY THE MEDICAL STAFF

Walker Hospital, Evansville, Indiana, Has Kept Pace With Constantly Growing Clinic—Arrangements Conserve Time and Energy of Workers—Some Details of the Organization and Administration

By EDWIN WALKER, M. D., Ph. D., F. A. C. S., MEMBER OF THE STAFF

THE great changes in the science and art of medicine in the last generation have completely altered the methods of practice. The office of one or two rooms, with a few books and instruments which sufficed for the doctor, is entirely inadequate today. These matters have given serious concern to the progressive man, and the different methods used to meet modern requirements by each individual present many points of interest. How to provide an office which shall have all necessary appliances for clinical diagnosis and treatment, and hospital facilities which will give the best results, are questions every progressive man must solve.

Every doctor, be he physician, surgeon or specialist, must have a hospital to take care of his patients, and since he must choose one for them, he is responsible for their treatment. When the surgeon decides that an operation is necessary and sends his patient to a hospital he knows is not of the proper sort, he is assuming a grave responsibility.

He has three alternatives: to develop and dominate an existing hospital, do his work in the home, or build and own his hospital. Each method has its difficulties, and the preference is determined by the circumstances. How the solution was found by the establishment of a private hospital at Evansville, Indiana, this article will disclose.

In 1882 there was in Evansville a small secta-

rian hospital only, which was neither well equipped nor doing suitable work. Feeling that better facilities were needed, eight physicians organized a private hospital. An old hotel was bought and a very crude institution was established. Notwithstanding many obstacles, the advantage of having the entire control in the medical staff was apparent. Improvements were steadily made and better results were early attained.

In 1887 a training school for nurses was added. This was the second in Indiana and about the thirtieth in the United States. The work prospered and broadened, and in 1893 it was determined that a new and suitable building was necessary.

I want to say with particular emphasis that this hospital was called into being to meet the demands of a professional practice already built up, and that each increase in capacity was made to meet the increased demands of the growing practice. Many physicians establish private hospitals expecting thereby to acquire a practice, and failure is often the result.

How to finance the new building was the question. Most of the staff were unwilling to put money in so uncertain a venture. Drs. A. M. Owen and Edwin Walker acquired all the assets of the old hospital and built the new one, furnishing all the money and owning all the stock. This hospital, through all its changes and growth, has never sold a share of stock or any other obligation

to anyone, and the owners have been left absolutely independent of all outside influences. To distribute the stock to private individuals or to doctors who send patients to the hospital is apt to lead to a form of "fee splitting" which is a serious drawback to an institution. No church, lodge or other organization or individual has been asked to aid the enterprise.



Fig. 2. Walker Hospital. The x-ray department.

In 1898 Dr. Owen died, and Dr. James Y. Welborn and Dr. Walker became the sole owners, and together have financed each addition and developed the work.

In 1904 Dr. W. R. Davidson joined the force, and later Dr. Charles L. Seitz became pathologist and Dr. W. R. Cleveland roentgenologist. The five doctors do the general medical and surgical work. The eye, ear, nose and throat work is done by the specialists in the city, and other internists are consulted in suitable cases. All surgical work, except the specialties mentioned above, is done by the staff.

These five men are natives of Evansville. The superintendent and her assistant, the chief office and operating room nurses, are graduates of this training school, and their homes either in Evansville or its immediate vicinity. There are twenty-five pupil nurses. We have found we do better with doctors and nurses who "grow up" with the work.

So the work has enlarged and required repeated additions to both the office and the hospital; in fact, the great strength has been the large general practice which has given us a clinic of great variety, as all kinds of cases come and their study

broadens the whole staff. The patients of the hospital have been almost all surgical cases, because the capacity before the last addition was not large enough to accommodate many medical cases. This we considered a great disadvantage; a well-rounded work, we think, is much better. Our medical, surgical, obstetrical and special cases are now received and any can be placed in the hospital when it is desirable.

The methods of conducting our business may prove interesting. The keynote of it all is thorough examinations, employment of every means of diagnosis, and team work. Every patient is taken through a comprehensive investigation. Always two or three, and in obscure cases all, of the staff take part in the examination.

This we have found of great value, and often points are elicited which would escape the attention of a single examiner. It also develops all the staff and gives them a wider observation; they stimulate each other and aid in consulting authorities and all other efforts connected with clinical work.



Fig. 3. Walker Hospital. Diet kitchen.

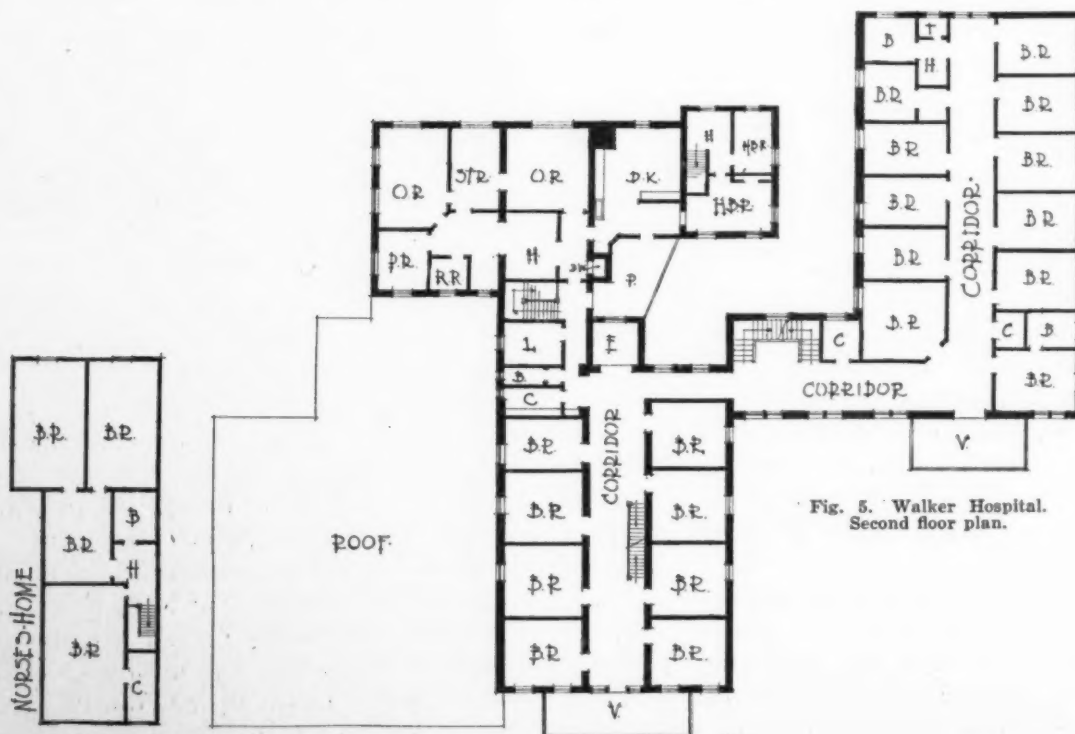
The patient comes first into the waiting room and the secretary takes the name and address and places it in a drawer which passes from her desk through the wall into the doctor's room. The doctor has the patient brought into his office, asks the preliminary questions, calls one of the office nurses and directs her to take the patient into one of the examination rooms. Here the patient is weighed, the pulse, temperature, hemoglobin and blood pressure taken. The urine is also tested and the patient prepared for an examination. The routine is to go over the head, organs of special sense, mouth, teeth, throat, tonsils, chest, abdomen, pelvis and such special examination of the

THE MODERN HOSPITAL

Fig. 4. Walker Hospital.
First floor plan.

KEY TO PLANS

- | | |
|----------------------------|------------------------|
| V. Veranda. | XRR. X-ray room. |
| BR. Bedroom. | XRS. X-ray screen. |
| C. Closet. | LC. Linen closet. |
| B. Bath. | DO. Doctor's office. |
| T. Toilet. | L. Laboratory. |
| H. Hall. | SD. Surgical dressing. |
| DR. Detention room. | ER. Examination room. |
| SR. Superintendent's room. | GU. Genito-urinary. |
| E. Elevator. | WR. Waiting room. |
| S. Store room. | RR. Robing room. |
| HDR. Help's dining room. | LR. Living room. |
| P. Porch. | DC. Dark closet. |
| DW. Dumbwaiter. | OR. Operating room. |
| K. Kitchen. | STR. Sterilizing room. |
| NDR. Nurses' dining room. | PR. Preparation room. |
| SP. Service pantry. | DK. Diet kitchen. |
| CC. Cold closet. | HBR. Help's bedroom. |

Fig. 5. Walker Hospital.
Second floor plan.

extremities as may be required. If further examination is required, it is arranged for. The head office nurse gives any test-meal required, removes and analyses it. If a cystoscopic or rectal examination or other special exploration is necessary, a nurse prepares for these and notifies the doctor when she is ready.

Any special microscopical, clinical or bacteriological examination is made by the pathologist. Bowel movements or discharges can quickly be obtained and examined. The laboratory is fully equipped for all clinical work, and serological, chemical or bacteriological tests can be promptly

room and an ample force can be appreciated only by seeing the work in progress. Besides, a much more thorough examination can be made. By combined team work each man has a chance to show his special fitness. The same method is pursued with treatments of various kinds, irrigations of the cavities of the body, lavage, electrical applications, which are done by the doctors or nurses, as may be best.

Should the patient require further observation or treatment or operation, and is to enter the hospital, he is passed over to that department with written directions for what is to be done. These directions go to the head nurse on the floor, who gives orders necessary to carry them out. If an operation is required, a special written order goes to the operating room nurse, who has charge of the preparation. The time saved by having the patient near at hand is incalculable. He can be brought to the office at any time, or the doctor can visit him in his room without interfering with his work. This continuous observation is very valuable in many cases and any treatment can be better carried out by having a force large enough to look after all details.

All records are made on plain cards, 4x6 inches, and the information is put in the same place on all cards. We formerly had a printed card, but we did away with this because the space required for the different data varies so greatly in different cases. The object is to make everything brief and clear, using abbreviations, so that all that is essential can be put in a very compact form. Long histories are avoided, as one rarely has time to read them. We have used this method since 1899. These cards are convenient to handle and are large enough for most cases, and for those cases requiring longer history and those in which prolonged treatments are given, several cards, and if necessary, letters and memoranda can be clipped on.

The operations are also recorded on a separate card, kept in another file. No further cross-index is attempted except in such cases as are being especially studied, and these are kept by name on an index card. Cross-index of disease entails so much labor and takes up so much room that it can be useful only where an elaborate force gives its time to the work.

The hospital is located in a residence section, only one block from the car line and four blocks from the business section. It faces a small park, which, with the beautiful trees about the building, gives a quiet, secluded appearance not often attained in the heart of a city.

The lot frontage is 215 feet, and the lot extends through the block, giving an ample yard, which further adds to the attractions of the place.

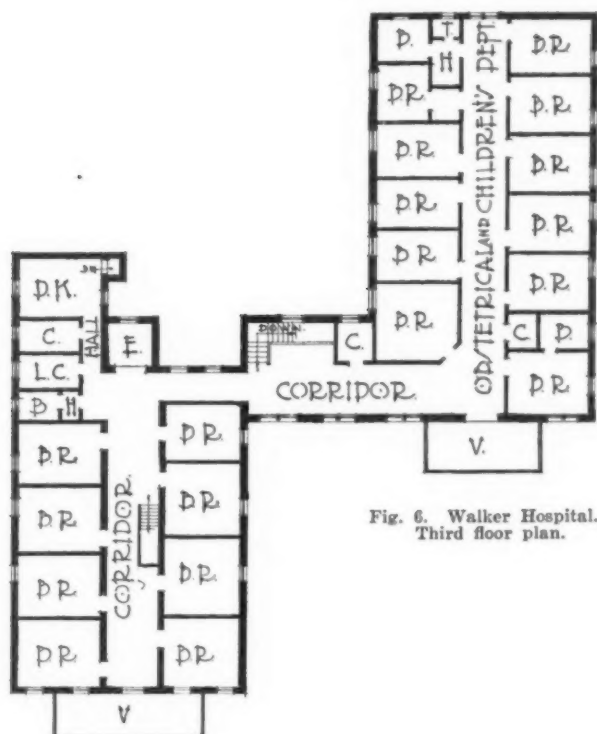


Fig. 6. Walker Hospital.
Third floor plan.

made. The room is large and has two sinks, one in the center of the room and accessible from both sides, and there is plenty of table room and light, so that several doctors and nurses can work at the same time without interfering with each other. Much of this routine laboratory work is done by the nurses.

The roentgenologist is ready to make the fluoroscopic examination, or to radiograph any case which may require it.

Examination by all the staff is rendered more convenient by having fourteen examining rooms, which are accessible to all without going out to the reception room. The patient, being undressed, may remain as long as is necessary to give each doctor time to leave his other work and take part in the examination, and after the examination is completed the patient may dress and leave without interfering with the other work.

The great saving of time by having plenty of

The original hospital forms the main portion of the building. It is of three stories, brick and concrete, and of substantial construction. There is a central hall, ten feet wide, into which the rooms open. At the rear of this is an automatic electric elevator. Back of the elevator are the kitchen, store rooms, one of which, with walls and ceiling and floor of cork and cement, is being used for refrigerating purposes; a large dining room for nurses and another for help.

The laundry and water heater and sterilizer are in the basement.

On the second floor is the operating department, consisting of a supply room, two large operating rooms, one of which is arranged for a delivery room when needed, and a small operating room arranged for special operations, a wash room with a large sink, running water being used; sterilizing room, and a room for supplies. The walls are of hard cement with white enameled coating, and the floors are of artificial stone. The sterilizers and accessories are the usual pattern (Bramhall). The instruments and all other equipment are complete, representing selections made by the doctors in their trips abroad and to medical centers.

The new wing, which has recently been opened, is built farther back from the street so as not to interfere with the original building, and is connected by a cross hall, and, like the main building, has a central hall into which the rooms open. It is of three stories, of fireproof construction, of brick, stone, reinforced concrete, solid floors and partitions. The floors and baseboards and stairways are of terrazzo throughout. All plaster is hard and all angles are rounded. The best ventilation and light are obtained, as all rooms are outside.

The Waring system of heating is used and the steam is supplied by the public service, which gives steady, uniform heat day and night.

The lighting is by direct electric fixtures, except in a few rooms, which have the indirect. The signal lighting is of usual construction, except there are lights in the halls of both buildings, which register on all floors. The head nurse can see from any hall whether the signals are being answered promptly. There are the usual baths, with showers in each wing and on all floors; also six rooms have private bath. There are many wash stands, slop sinks, toilets and other modern conveniences. Each floor has its linen, clothes and storage closet. It is rarely necessary to go to another floor for anything.

The diet kitchens on the second and third floors are connected by dumbwaiters with the main kitchen, and the trays are prepared in these. Many articles of special diet are also prepared.

Every effort has been made to save extra work and the labor of operation has been greatly reduced.

The hospital's capacity is 75 patients. There are no wards, but two beds in a room are used instead for the cheaper accommodations.

The office is a one-story building on the other side from the new wing and opens into the central building. The waiting room is entered from the street. In an alcove at the entrance to the main building is located the secretary's desk. The files for records and the telephone exchange are found here.

The two front rooms (see plan) are so arranged about the halls that one may enter either one without disturbing occupants of the other. Each member of the staff has his own room, with his desk and such personal things as he desires. Besides, there are four rooms 6x8 feet for general examinations, a cystoscopic and rectal room, and an x-ray department, with photographic, fluoroscopic, and developing rooms. The laboratory is 17x20 feet, giving ample room for all without crowding. The office has, therefore, seventeen rooms, and it is possible to have twelve patients undergoing examination or treatment at the same time.

The nurses' home is near the office and quite separated from the hospital. It is a two-story dwelling of modern construction and has every convenience.

Thus the members of the growing clinic built an office and a hospital to suit their needs and financed it all without resorting to any improper methods.

The success of the enterprise proves its fitness and shows that a private hospital and clinic can be conducted on a high plane and can be of real service to the community; and the united and loyal efforts of those taking part in the work has benefited all.

Mrs. Edith L. Morgan, R. N., a graduate of the training school of the New England Deaconess Association, class of 1910, and for the last three years superintendent of the Charles Choate Memorial Hospital, Woburn, Mass., has lately assumed the superintendency of the Ensworth Deaconess Hospital, St. Joseph, Mo., which will soon occupy a new \$125,000 building. Mrs. Morgan's predecessor, Miss Ethel Hastings, who had been in charge of the Ensworth Deaconess Hospital for six years, resigned her position some time ago on account of impaired health.

Miss Rachel McEwen, formerly head nurse at the Massachusetts General Hospital, Boston, has recently been elected superintendent of the Charles Choate Memorial Hospital, at Woburn, Mass., to fill the vacancy caused by the resignation of Mrs. Edith L. Morgan, who accepted the position of superintendent at the Ensworth Deaconess Hospital, St. Joseph, Mo. Miss McEwen is a native of Canada. She is a graduate of the Massachusetts General Hospital in nursing, also in hospital administration, and has been connected with a hospital at Brockton, Mass., and with St. Luke's Hospital, New Bedford, Mass., as assistant superintendent.

HOSPITAL OF HIGH-GRADE CONSTRUCTION BUILT AT A VERY LOW COST

St. Joseph's of Chicago, Severely Plain in Design, but Arranged With Particular Reference to Economy of Administration and Simplicity in the Handling of Patients

By C. HUGH MCKENNA, CHIEF OF STAFF AND VICTOR ANDRE MATTESON, ARCHITECT.

A FAIRLY wide observation in this country and abroad into hospital organization impresses one with the thought that much progress has been made in medical and surgical technic, but that relatively little has been accomplished in hospital architecture to make possible the most efficient methods of technic with the least expenditure of energy.

As a general rule, other things being equal, we believe it is safe to state that the highest standard of efficiency will obtain in that hospital in which the maximum amount of service may be rendered with the minimum expenditure of physical energy on the part of the nursing service.

The foregoing statement does not presuppose a lowering of the standard of training of nurses, but rather the means by which the acme of success may come to those scientifically trained by presenting a real opportunity for progressive work based upon a convenient daily routine that must necessarily bring with it the highest type of professional service. For this reason we believe that the following observations will be of interest:

In planning a modern hospital three essential considerations should be kept in mind, which, in the actual working out of the problem, seldom all materialize successfully in the same building. We refer to architectural considerations closely interwoven with the medical side of the purpose for which hospitals are built, and particularly in connection with the surgical department. These three all-important subjects deal, first, with asepsis; second, with convenience, with reference to the work of the surgical team; third, with

arrangements tending to minimize the possibility of psychic shock. All three of these have to do with the welfare of the patient.

We know of but one hospital in which all three of these problems have been given successful consideration without increasing construction and operative costs. That one is the new St. Joseph's Hospital of Chicago, designed by Mr. Matteson, and built under his supervision at a surprisingly low cost. This is a five-story fireproof building, with a full story-high basement, and a sub-basement.

While it is nearly a complete unit in itself, it forms an annex rather than an addition to the old building, and is the first unit of the future development of the hospital. The main entrance and offices are located in this building, and four of the stories are devoted to patients' rooms, of which half are provided with individual toilet and bath facilities, with rooms en suite. The patients' rooms are arranged and constructed in every way in accordance with the latest ideas in hospital planning, are well lighted and ventilated, and are practically soundproof, and every consideration has been given to both the comfort and



Fig. 1. St. Joseph's Hospital, Chicago.

welfare of the patient and the convenience and efficiency of the hospital work. The fifth or top story, in which there are no bedrooms, is entirely devoted to the surgical department, and it is to this department that this article is especially devoted. Before passing to this subject, however, it may be well to state that the massive, imposing and altogether attractive appearance of the exterior has been accomplished by the simplest means and at almost no expense other than that



Fig. 2. St. Joseph's Hospital, Chicago. First story corridor and office.

incidental to the covering of the concrete skeleton—which is actually exposed in places as a part of the exterior architectural scheme.

A diagram of the surgical floor of the new building is published with this article. The same floor of the old building is devoted to the maternity department and related operating rooms, the children's and babies' wards, the x-ray department, and laboratories.

In arranging the surgical department, the first thought was given to the segregation of surgical cases, and the classifying of the various types of surgical cases admitted to the various operating rooms. Pus cases were eliminated from the department entirely, a special room being provided for the purpose on the ground floor. Surgical dressing rooms are provided on each bedroom floor devoted to surgical cases, and are thus eliminated from the operating department. An emergency operating room is provided on the ground floor, near the ambulance entrance, together with its own complement of wash-up room, sterilizing room, recovery room, and preparation room. The main surgical department is entirely isolated from all other departments and contains four main operating rooms (two of which are provided with local sterilizing rooms), wash-up rooms, main sterilizing room, preparation rooms, and recovery room for emergency purposes.

These are arranged with special thought toward absolutely clean operative work from the most exacting surgical point of view. From the diagram of the plan, it will be noticed that between each two main operating rooms is a surgeons' final wash-up room. In each of these is located an unusually large porcelain wash sink, provided with two spouts from which is obtained a copious supply of sterile water, the temperature being controlled by valves especially designed by the architect for this hospital, combining the advantages and eliminating the disadvantages of both the knee and foot operated valve. All water supplied in this department is sterilized, provision also being made for filtering it if desired. (Chilled drinking water is to be obtained from the same source, supplied to each floor and to all the more important rooms.) A smaller emergency wash-up sink is also provided in each operating room. The main operating rooms are furnished with daylight from wide double plate glass windows, extending from the ceiling to near the floor, and by clear plate glass ceilings covering 35 percent of the area of the room, supplied with light by skylights in the roof. Artificial light is furnished from high power electric lights distributed above the plate glass ceiling with transparent prismatic reflectors, thus furnishing an even distribution of light, and avoiding all dust-catching fixtures in the room.

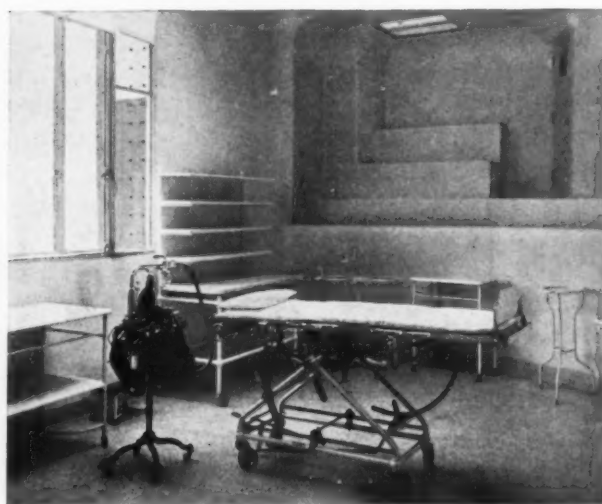


Fig. 3. St. Joseph's Hospital, Chicago. One of the four main operating rooms.

Heating is accomplished by a double system of radiation located within the double exterior walls, the interior portion of which is constructed of heavy steel sheets, finished in white enamel so as not to be distinguished from the other walls of the room. Any desired temperature may be obtained by means of modulation valves. In the summer, heat may be obtained if desired from a

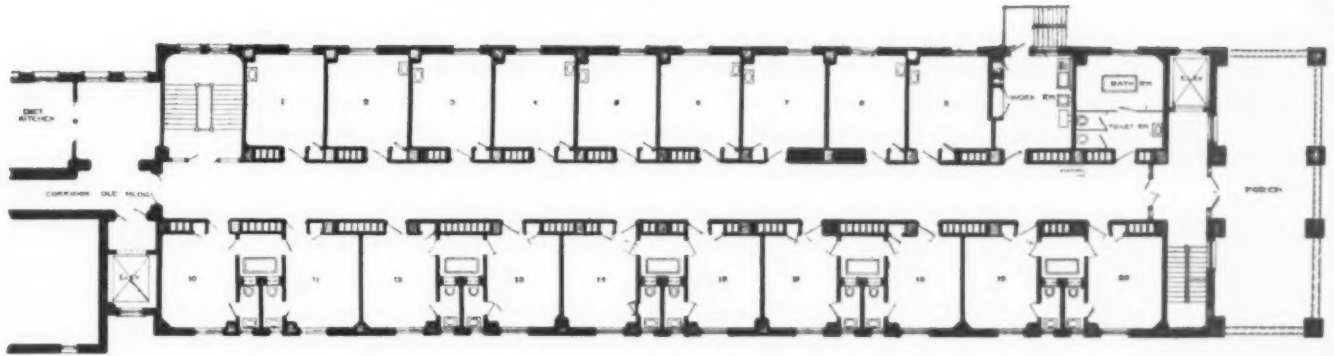


Fig. 4. St. Joseph's Hospital, Chicago. Typical plan.

second set of radiators located in the same space, connected with the high pressure steam system supplying the sterilizers.

The walls of the operating rooms are of hard plaster, with all angles finished with large coves, (which arrangement prevails throughout the building), and are finished in cream white enamel. The floors are of polished white terrazzo, with coved terrazzo bases to match. The amphitheaters, of which there are two, are formed of concrete with coved angles with white tile-paved steps or seats. The space below amphitheaters is warmed. Dust-catching fixtures are eliminated wherever possible throughout the building, and especially in this department. Care has been taken to eliminate dust wherever possible, but where impractical to do so materials have been selected such as will show the dirt as plainly as possible, and at the same time facilitate easy cleaning. A special elevator is provided, connecting this department with each story through vestibules, and with the ambulance entrance hall in basement near the emergency operating department. This elevator is used exclusively by patients and their attendants to and from the operating department. No one is admitted to the isolated portion of the operating department but properly prepared nurses, surgeons in gowns, and the patient. On the other side of the isolating glass partition of the main surgical corridor are located the eye, ear, and nose and throat department, the genito-urinary department, and rooms

for handling simple fractures. Here also are the surgeons' consultation room, locker and dressing room, toilet and bath room, nurses preparation and toilet rooms, linen and bandage room (unsterile), and the entrances to the amphitheaters.

The third point, and not the least important of the three, is the question of psychic shock, a problem that is handled very unsuccessfully, if even considered, in most hospitals. The department, as here arranged, provides facilities such that with ordinary care the patient may be properly prepared and brought to the point of anesthesia without delay, and without being subjected to a confusion of sights, sounds and people, calculated to influence the mental condition of even those patients not normally of a nervous temperament.

The cost of the building, exclusive of architect's fees, 6 percent, and the furnishings, figures less than 24 cents per cubic foot. Boilers were not included, as steam is taken from a central heating plant already installed.

The work was let in one contract for the main items, so far as was possible. There were practically no extras, but such as there were, they are included in the following figures:

Concrete construction	\$ 47,800.00
General contract (masonry, plaster, carpentry, etc.)	88,000.00
Heating and ventilation, plumbing.....	30,200.00
Electric wiring and fixtures.....	8,100.00
Elevators	6,000.00
Hardware, pneumatic clock system, etc.....	1,600.00
	<hr/>
	\$181,700.00

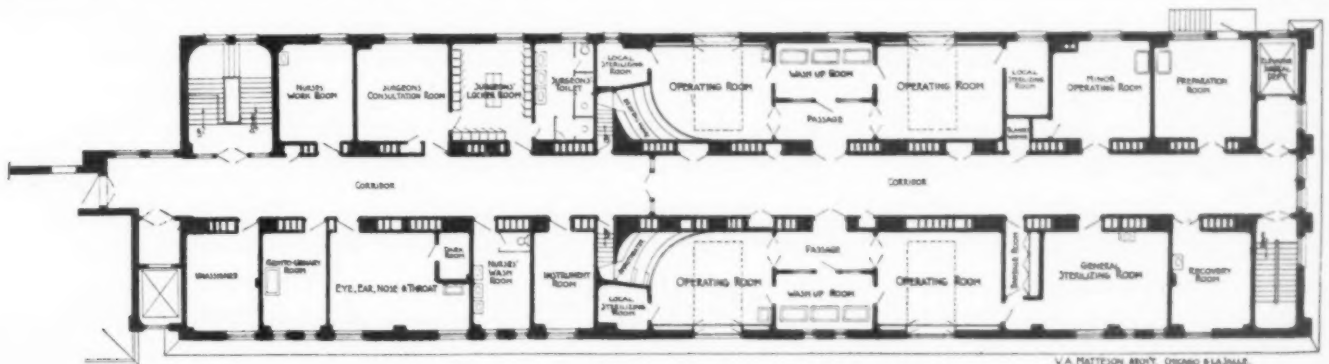


Fig. 5. St. Joseph's Hospital, Chicago. Fifth floor plan.

COMPARATIVE SERVICE IN THE COMMUNITY HOSPITAL¹

In the Large Institutions Patients Are "Cases"; in the Small Hospital They Are "Just Folks"—Modern Hospitals Planned by Architects Are "Nurse Killers"—Some Suggestions for Improvement

By NETTIE B. JORDAN, SUPERINTENDENT AURORA HOSPITAL, AURORA, ILLINOIS

THE community hospital, like the small library, the township high school and the small municipality, has come to stay. It has come to stay because popular demand has made it imperative, and it matters little what restrictive measures the leaders of great hospitals may advocate.

The little hospital may be like an unwelcome child, but since it is in existence all the parents can do is to cherish and train it and bring out its best possibilities.

The great hospitals have departments such as are almost unknown to the small institutions, and which in some instances would be nearly useless to them. In the majority of small hospitals only acute cases are cared for and these it would be injudicious to send to a distant city.

I have obtained data, covering a period of years, from physicians and nurses who have had their training in large institutions and later have been identified with small hospitals; and I wish to give a fair comparison and point out the weaknesses to be found in both classes of institutions.

In both classes of hospitals boards are selected, in a similar manner, from people who have been liberal in donations or who represent an influential clientele connected with the hospital. The duties of the boards in both small and large hospitals are similar, and the greatest difference seems to lie in the fact that the members of the large institutions are more constructive and increase the institution's field of usefulness, while those of the smaller hospitals follow up individual cases and endeavor to eliminate personal grievances. The individual in a small hospital is something more than "a case."

In comparison of locations the large hospital yields to the smaller, for there is usually a decided advantage in being located in the cleanest part of the city and in having sufficient air, which is conducive to good sanitation.

The planning of the small hospital and the quality of construction is neither better nor worse than that of the large institution. Taking them collectively, I think most of them are rather badly planned. Architects are doubtless good men at heart, but when I see what "nurse killers" they can design out of wood and stone, I almost suspect them of being lacking in chivalry. Nurses are the most important working capital in the hospital; yet little consideration is given them when buildings are planned and built. I once asked a nurse

what gift would be of the greatest benefit to her work, to which she replied, "A horse would be the most acceptable gift; there are such distances to travel, with cart-loads of things that are beyond a woman's strength." There is more truth than jest to this statement, and I am sure the future hospital will give more thought to the relation of the arrangement of patients' rooms to the nurse service. To give to the subject of faulty construction sufficient space, with examples, would take more time than most people can spare.

If hospitals of the future are to succeed they must not follow too closely the plan of present institutions, especially those in Europe; the fact of the high mortality rate in the foreign hospitals should alone discourage this policy. We should plan nowadays to include the educational and sociological departments, which are a growing necessity and must be a future reality. Each new hospital should be built, not only to meet the need of the hour, but for the years to come.

I shall welcome the day when a national committee of the American Hospital Association shall act as censor of hospitals to be built. Each hospital would then be built to meet the actual local conditions and would not be out of proportion to its civic need. The new County Hospital in Chicago, from the standpoint of service, is both a good and a bad example of non-conformity to comparative conditions; it reminds one of a Paris gown worn at a country fair.

Women superintendents, it seems, are in the majority as administrators of small hospitals. Many of these women have come from large training schools where they have a keen insight into organization. The woman will succeed if she has native ability enough to be able to adjust herself to a small hospital and the people most vitally interested in it, and she succeeds best who learns early that the sick are "sure-enough people" and not merely cases. She has to realize that every man or woman, no matter how poor, is an employee of some more influential person who will listen to any story of hospital discourtesy. The man may be the gardener or janitor of one of the powers in the community. The woman may be a laundress, or she may be on the charity list of one of the best families. So it is impossible to disregard the feelings of any who may come under the hospital's care.

The women who are succeeding best have

adopted some of man's poise and are not guilty of "nerves." They do not make erratic decisions, but analyze a situation and exercise cool judgment. They must have humor enough to take the world as it really is, and be generous enough to appreciate the good in everybody, analyzing people's limitations and using the magnifier on the wholesome qualities and smoked goggles on the faults.

Sometimes the good-will of the most lowly may be an influence easily recognized. Many women think their technical training qualifies them to meet every condition, but they fail because they are so lacking in magnetism that people do not like them, and they cannot understand why. It is well to have a versatile mind that can meet a round situation with a square decision, but a large element of success radiates from a pleasing personality. Military dignity is not appreciated by the great rank and file of people who, after all, are "just folks."

Wherever a board of trustees fails to get broad women for the positions, there are frequent changes, and the service is always in a state of disorder.

It is a pathetic truth that there is not a school in the United States that offers a practical course in hospital administration. Some of the large training schools, as well as universities, give courses which apply to nursing, but not a business training that can be applied to small hospitals. The larger institutions will always be able to command the greater endowments and funds for educational and research work, and it is to them we must turn our appeal for assistance in this educational feature in hospital management. There are far too frequent changes in hospital administrations, and many a promising career is chilled in infancy and never quite attains the real fire of ambition.

There are many people who have been connected with large institutions who feel as I do regarding the personal relation borne by the nurses and doctors of the small institutions to their patients. It is a source of great comfort to be surrounded by people who have not let go of the human side of the medical science and who really care whether patients recover or not.

Nearly all the men who operate in the community hospitals have been interns in some larger institution and have taken post work both in this country and abroad; then, adding the personal equation to their skill, they meet the community's need in a very satisfactory manner.

Competition is keen and physicians are required to give their best service at all times or they find that the mercury of public approval can drop a great many degrees in a short time. In this age of

specialists the term "family physician" in the large cities is rapidly becoming obsolete.

Unless the great institutions get back a little of the human side of medical and nursing care, the little hospitals will always be dearer to the hearts of the people and will take precedence over them in restoring the sick public to their respective places in the world scheme.

In conclusion, I will say that for the small hospitals I prescribe better records, less frequent changes in administration, a more intimate association with the scientific work done in the educational centers; and to the great hospitals I suggest hospital accommodation for the self-respecting person who is neither a pauper nor a millionaire, and more personal and humane treatment.

ARE PUBLIC CLINICS TOO EXACTING?

A Student Applicant Wants to Know What Is the Test of Acceptability as a Patient?

We quote the following letter from a recent issue of the *New York Times*:

To the Editor of the *New York Times*:

Has a student the right to use the city's free clinics? Or, in order to secure proper attention, is it necessary for one to wear all the external signs of poverty, including uncleanness?

An art student who found herself for the first time in her life in need of an oculist, and who couldn't pay the fee he asked, was advised to go to a certain city institution for free treatment.

At the information desk of this institution she was questioned by a virtuous ramrod, who wore big spectacles, doubtless to show how wise anybody can look with the proper eye fixtures. It must be admitted, to the credit of the discerning faculties of the ramrod, that the student neither was unclean nor did she wear earrings and a shawl. But it might be well to add that her pumps were two years old, her shirtwaist she had made herself, her hat flaunted a scarf which, years ago, had been her mother's, and she wore no gloves, so that she might save those she had for cold weather.

After several preliminaries the ramrod asked the student how much salary she received when she worked. "I don't get a salary," she answered. The ramrod argued this point with her victim, but the problem was too much for her intellect. She got mad.

"You can't pay a doctor?" she snapped.

"Why should I have come here if I could?" said the student.

"You had better go to a doctor. This clinic is for the poor," said the ramrod, gave the student a green paper bearing the addresses of several eye specialists, and, with a good deal of rudeness, dismissed her. There was no appeal.

Then the student went out and found a superman doctor, who understood how one could be neat and clean and yet not be able to pay a physician's bill, and how one could work and not receive a salary.

In the face of these facts, I ask this: Is the student of less value to the city than the picturesque tramp, or, at any rate, than that class of people which necessitates "Beware of Pickpocket" signs in the clinics, that he should be refused medical aid when he needs it?

I am really sure that this is not the case, and so, since the city must be represented in its institutions by various paid officials, I would suggest an examination for such, composed of questions suitable to a limited degree of intelligence and reading, for instance, like this: Can you distinguish any shades of class difference which might occur in the range from pauperism to moneyed aristocracy? Or, how can a man work and not get a salary?

R. KATE FELKER.

LIABILITY INSURANCE FOR PROTECTION OF HOSPITALS

Laws Are Unsatisfactory, and Juries Lean Toward Plaintiffs—Ambulance-Chasing Lawyers Complicate a Badly Mixed Situation—Wisdom Therefore Prompts the Setting Aside of Fixed Premiums Rather Than Taking Chances

By HERBERT T. WESTON, M. D., AETNA LIFE INSURANCE COMPANY, ACCIDENT AND LIABILITY DEPARTMENT, HARTFORD, CONN.

THE above title is descriptive of a form of liability insurance designed to protect the owners of hospitals and sanatoriums against losses that arise through claims that are made by patients or their heirs or estates for damages on account of injuries or death occurring by reason of or in connection with actual or alleged errors in the treatment or care furnished them at the institution. The desirability of this kind of protection has been repeatedly demonstrated.

The increase in the number of these cases can be attributed to several factors, an important one being the taking effect of the various workmen's compensation laws, that have deprived a certain class of attorneys of a source of income; these attorneys are now seeking cases that previously were not as desirable from their standpoint.

In conducting the defense of such cases it is found that:

Rules of law are changing.

Juries are awarding more and larger verdicts.

New issues, theories and lines of evidence are being developed.

The burden of proof is constantly shifting to the disadvantage of the defendant.

The principles governing the trial of such cases are not fixed at present either by statute or decisions; but are in course of being developed. The rules defining the duties and obligations assumed by the institutions when admitting a patient are not at all well defined and may properly be considered to be in a state of development, with a constant tendency to become more drastic and increase the probability of loss if any error or even neglect or failure to perform some proper act can be shown.

The tendency seems to be toward holding a hospital to a more strict accountability than a physician or surgeon, not only as regards the acts of their employees, but also the acts of interns or others over whose connection with the institution it has a privilege of selection.

On account of the better equipped attorneys that we may expect to find appearing for the plaintiff in these cases, we must also expect that new causes of action and theories of damage will be evolved; in fact, this condition is now apparent and its effect is quite perceptible in recent cases.

A case that specifically illustrates this point is

one in which a verdict for \$2,500 was recently awarded the plaintiff; the circumstances may be described as follows:

A bookkeeper, married, nineteen years of age, working and living in a damp climate, applied to a hospital corporation for treatment for what he supposed was an attack of la grippe; later he developed pulmonary tuberculosis. The claim was, that on account of the hospital physicians failing to warn him against continuing his employment and living in the damp climate, and failing to advise him of the danger of his developing tuberculosis, he was damaged and prevented from properly caring for his health; he also claimed a mistake in diagnosis as aggravating the damage. A verdict granted upon such claims will probably be reversed in the higher courts, but is referred to here to emphasize the present trend of this class of litigation. If an appeal is taken in this case the expenses to be incurred, win or lose, will not be an insignificant sum and there is always at least a retrial and its expenses in prospect, even if the appeal be successful.

The expense connected with the successful defense of such suits is usually a large sum; if it were possible to learn the total amount so expended during the past five years, it would probably be found to be largely in excess of the total of all judgments paid.

While the plaintiff's attorney is only gambling his time against the possibility of winning a substantial part of any judgment recovered, the defendant is forced to employ the best equipped and most competent counsel obtainable, in order to be sure of presenting the best possible defense and overcoming the prejudice of the jury toward the individual, or take the chance of losing the case. The services of counsel so qualified cannot be obtained for nominal sums. The information upon which to base the selection of counsel is not always obtainable, even if the cost of such service can be wholly disregarded.

In this connection it must be remembered that the publicity incident to a jury verdict being obtained in any community has the immediate effect of causing other claims, both real and imaginary, to be made and suits started, all of which necessitate proper defenses to be made.

In addition to claims and suits originating from

such a course, it seems necessary to call attention to the systematic campaign for securing such cases that is being conducted in some of the larger cities through organizations maintained by what have been styled "ambulance-chasing lawyers." It is true that the work of such organizations has been mostly confined to the larger cities, up to the present; but it must be expected that the same practice will rapidly reach the smaller communities, for unfortunately the congested districts have no monopoly of such men.

When a judgment is collected, a jury verdict rendered or a compromise settlement effected, there is an incentive for other claims to be made. The period within which these claims may be brought and maintained corresponds with that provided by law for the outlawing of other tort actions. This results in a condition being present that places the owners of hospitals and sanatoriums in a very peculiar position. One claim successfully prosecuted causes others, that have not outlawed, to be brought, and in this way heavy losses may arise, which must be cared for during a limited period, thereby seriously interfering with the available funds and finances of the institutions.

There can be no possible objection to calling attention to this point, especially when it is well known that in many of these institutions it requires a continued effort and the closest attention to detail to keep finances in a condition permitting efficient operation. On this account the payment of large sums that are required for legal expenses, and the payment of settlements and judgments will be very apt to cause serious embarrassment, unless these payments have been provided for in advance.

Only by the purchase of hospital liability insurance can demands for funds, with which to pay such losses, be cared for in advance. The premium for this protection should be considered as necessary an item in the annual budget as fire insurance premiums. The payment of such premium secures the services of the entire organization of the insuring company as your attorneys in fact for the handling of such cases without additional expense to you for such service. The success of their acts is guaranteed by the capital and surplus of the insuring company up to the limits of protection purchased. The selection of a particular company from which to purchase such insurance should only follow the most careful investigation of: policy forms, security, general practices, attitude towards policyholders, and particularly the quality of service that may be expected as indicated by the history and reputation of the insurance company.

The fact that these hazards have not been suf-

ficiently appreciated and chances have been taken is no reason why such a course should be continued, especially when the owners of these institutions can secure complete protection against every claim that may be brought by a patient on account of acts alleged to have been committed during the insurance period, only excepting acts shown to have been committed while the attendant was under the influence of narcotics or intoxicants or while engaged in or in consequence of an unlawful act. The purchase of such insurance converts an unknown loss or liability into a fixed charge that can be provided for in advance. It does away with any question regarding the selection of proper counsel to defend such litigation. It also enables the purchasers to avail themselves of the specially trained employees of the insurance company in all matters in any way connected with this problem, and gives them the benefit of the wide experience secured through the continual handling of these problems, as well as other closely related incidents. It protects the funds of the institution against attack or diversion from the purposes for which they are designed. It assures those conducting such institutions the opportunity of presenting a united front toward attacks of this kind.

The point might be raised, that the need for such protection has not yet been demonstrated in many localities, but in view of the fact that these claims can be in abeyance for years, it would seem as if an immediate recognition of the conditions that are bound to develop and the preparation in advance for meeting them properly would be dictated by good business judgment. Otherwise it is probable that the gradual development of adverse conditions will reach a point where they will place the owners of such institutions at a decided disadvantage.

A golden jubilee celebrating the fifty years of service of Dr. Norman Bruce Carson, at the St. Louis Mullanphy Hospital, was held last month by physicians, nurses, Sisters of Charity, former patients and other friends of the doctor. Dr. Carson, who is now chief of staff at the Mullanphy Hospital, is said not to have missed a day at the institution during the last fifty years. The program of the celebration included addresses by Dr. F. G. Nifong, Dr. Joseph Grindon, Dr. F. J. Lutz, Very Rev. M. S. Ryan, C. M., D. D., Acting Chancellor Francis Alden Hall, of Washington University, and Dr. Ellsworth Smith, paying tribute to Dr. Carson's professional skill, his faithful service to the hospital, particularly in building up the training school, and also to his activity in charitable work. Dr. Carson was born in Pennsylvania in 1843 and moved to St. Louis with his parents when four years old. He was graduated from the old St. Louis Medical College and immediately went on the staff of the St. Louis Mullanphy Hospital, with which he has since been connected. He became chief of the hospital staff at the death of Dr. E. H. Gregory in 1906. Dr. Carson is professor emeritus of surgery at Washington University, surgeon at the Barnard Free Skin and Cancer Hospital, president of the St. Louis Surgical Society, and former president of the St. Louis Medical Society.

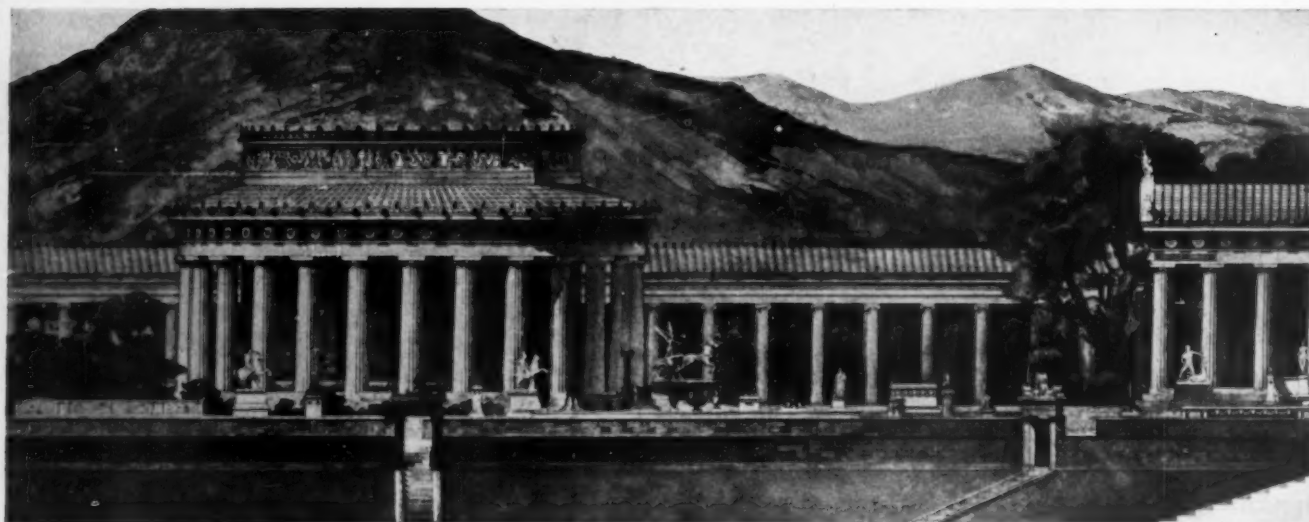


Fig. 1. Restoration of some of the principal buildings of the Hieron of Aesculapius at Epidaurus.

The Temple

AN EARLY GREEK SANATORIUM AND DISPENSARY

The Hieron of Epidaurus—The Chief Seat of the Worship of Aesculapius—Temple of the Mythical Father of Medicine—Other Important Buildings of the Epidaurean Group

BY JAMES MOORES BALL, M. D., ST. LOUIS

THE front cover of this issue of THE MODERN HOSPITAL shows a picture of the Tholos, or Thumela (sacrificing place) of the Hieron of Aesculapius at Epidaurus, as restored after the researches of Defrasse and Lechat¹, which were conducted under the auspices of the French Government.

In Argolis, situated at a distance of about six miles from the coast, are to be found the remains of what was once the most famous of the many Greek temples erected in honor of Aesculapius. The town of Epidaurus is located near the sea, but the large group of medical buildings was situated inland.

Aesculapius, or Asklepios, was first mentioned in the Homeric poems as a Thessalian king, not as a god; but divine honors were given to him in later times. Although medicine among the Homeric Greeks was quite distinct from religion, the worship of Aesculapius as the god of healing is worthy of notice.

Greek temples of medicine (called asclepia) were numerous, and in the work of Schulz² more than sixty of them are described. The temple at Epidaurus and that on the island of Cos were particularly famous. To these and to similar shrines sick persons were conveyed in order to be cured, just as in modern days relief is sought by means of a devotional pilgrimage, or from the waters of a sacred spring. Then, as possibly is done now,

relief was sometimes sought by deputy. The patient, or his representative, after ablution, prayer and sacrifice, was made to sleep upon the hide of the sacrificed animal, or at the base of a statue of the god, while sacred rites were performed. During the night the proper remedy was indicated in a dream. A record of the case—particularly if it were successful—was made on the columns or walls of the temple or on a votive tablet.

The worship of Aesculapius passed from the Greeks to the Romans and extended to all countries subjugated by the two nations. The Aesculapian temples were both hospitals and places of worship. None but the initiated could enter these shrines. Only the priests could look upon the columns of Hygeia at Aegaeum; no dog was permitted to enter at Delphos; no child could be born at Epidaurus, and no one was allowed to die within its grounds.

It was in the valley of the Hieron (consecrated place) that a noted group of buildings existed in early days. In these the worship of Aesculapius was carried on for a long period.

Richard Caton³ has given us his idea of an outline restoration of the buildings—a plan which does not profess to be accurate. The difficulties attending the identification of the various structures were mentioned by Valentine Mott.⁴ He said: "We found in several places confused heaps of ruins, which, however, were not sufficiently de-

¹Defrasse et Lechat: *Epidaure restauration & description des principaux monuments du sanctuaire d'Asclepios*. Paris, 1895.

²Schulz: *Historia Medicinæ*. Lipsiae, 1728.

³Caton: *The Temples and Ritual of Asklepios*. Hertford, 1899.

⁴Mott: *Travels in Europe and the East*. N. Y., 1842.



of Æsculapius.

The Temple of Artemis.

finer for one to say positively to what character of edifice they belonged, or whether they were a part of the temple or of the ancient city of Epidauros." The Hieron group included the Propylæa, or ceremonial gateway; a large quadrangle about 250 feet square; the temple of Æsculapius, or central shrine; the Abaton; the Tholos, etc.

In the temple of Æsculapius was a statue of colossal size, the handiwork of Thasymedus, made of gold and ivory, which represented the god of medicine as an old man seated on a throne, holding a staff in one hand and resting the other on the head of an enormous serpent. A dog, the emblem of vigilance, lay reposing at his feet. The whole figure bore a striking resemblance to that of Zeus.

The theater is said to have been built about the year 450 B. C. by Polycleitus, architect of the Tholos. Pausanias states it was the most interesting of all the theaters existing in his time; and Mott⁴ says: "This immense theater, incredible as it may seem, would accommodate within its enclosure, I should imagine, at least 30,000 persons." Caton⁵ tells us that "the acoustics of the theater are perfect; a sound little louder than a whisper uttered on the stage can be heard in every part."

In Fig. 1, extending across two pages, the Tholos is seen at the left, the temple of Æsculapius in the center, and behind both the Abaton, a long portico, open on the side shown in the picture, and walled on the other.

The Tholos is declared to be the most beautiful circular temple ever built by the Greeks; it was built by Polycleitus the Younger, and took twenty-one years to build. One theory holds that the Tholos was a drinking fountain, where rose a healing spring; another theory is that it was used for

minor sacrifices. Below it is a labyrinth, which may at one time either have been a cistern or the home of the sacred serpents.

The temple of Æsculapius was the central shrine, and was richly decorated and colored. The Abaton constituted the main ward for the sick, and was furnished with pallets, lamps, tables, altars, etc. It contained room for about 120 beds, and it is believed that the open-air feature of the Abaton may have been a great factor in such cures as were effected. Other buildings about the grounds, not shown in this picture, are thought to have been used to house patients, and the total capacity of the Hieron is estimated to have been some five or six hundred patients.

In front of the buildings shown in Fig. 1 is seen something resembling a sunken pit. This is the Stadium, which seated 12,000 to 14,000 spectators. The presence of a stadium in connection with a hospital is strange to modern ideas; but in the Greek mind athletics and health were doubtless closely associated. It is probable that multitudes of athletes and Greeks who merely wanted a holiday came to the Megala Asklepieia just as they did to the Isthmian or Olympic games.

The technic followed by Æsculapius and his disciples is largely a matter of conjecture. It is known, however, that the large yellow snakes, with which the valley abounded, were held sacred, and were supposed to exercise a healing power by licking with their tongues any affected part of an invalid. The snakes were harmless and quite tame, and the sick were in the habit of feeding them with cakes. The dog, as well as the snake, was sacred to Æsculapius, and dogs in the temple were trained to lick any ailing part of the patient.

Miraculous cures were claimed for all sorts of illnesses, and history shows that the Greeks were not a whit behind the ignorant of modern times

⁴Mott: *Travels in Europe and the East*. N. Y., 1842.

⁵Caton: *The Temples and Ritual of Asklepios*. Hertford, 1899.

in gullibility. One inscription tells us that the god cured dropsy by the method of cutting off the afflicted person's head, holding him upside down till the fluid drained off, and then replacing the head. Blindness and paralysis were often cured by the licking action of dogs and serpents.

In later times, however, we find many common-sense practices carried out. Dieting, hot and cold baths, poulticing, massage, counter irritation, and light exercise were frequently prescribed. The pharmacopeia was limited, and included such things as hemlock juice, hellebore, squills, and lime water.

The Hieron and its environments exercised, however, such therapeutic effect as there may be

in beauty. Nothing was spared to make the buildings magnificent monuments. Marvelous sculpture, scores of statuary figures, busts, groups, colored bas-reliefs,

pediments, shrines, decorative vases and fountains, doors of ivory inlaid with gold—such things must have impressed the sick with the power of the god. Large and lofty trees formed groves, low mountains made a view wherever one turned, and soft breezes and the pure mountain air undoubtedly had a part in many recoveries. A library furnished occupation for

the scholarly, and music, religious dances and festivals made the time pass pleasantly, and probably induced a hopeful and beneficial condition of mind which aided recovery.



Fig. 2. Chryselephantine statue of Æsculapius, which stood in the temple of Æsculapius.

THE TECHNIC OF PRACTICAL ROUTINE FIRE DRILL IN HOSPITALS

A System That May Be Practiced Without Alarming or Disturbing Patients—Simple Rules for Handling All Available Help

By BYAM HOLLINGS, M. D., ASSISTANT RESIDENT PHYSICIAN MASSACHUSETTS GENERAL HOSPITAL

THE question of fire drills has arisen in the minds of all hospital administrators. Are they worth while? Or is the hospital, theoretically, well protected by its construction, fire equipment, and proximity to a fire department? These matters have received consideration at the Massachusetts General Hospital, and in spite of the fact that many of the hospital structures were fire-proof and the fire equipment was ample, it was decided to institute the fire drill.

The object of the drill was to assemble a number of orderlies, mechanics, nurses and interns at a given point in the least possible time. This drill has proven of value. The method pursued is shown by the rules cited later. A nurse, at the suggestion of one of the assistant resident physicians, calls the office switchboard, merely stating the words, "Drill, Ward C," or any other given spot. The operator then follows a given routine.

As a result it was found that from fifteen to twenty persons arrived at the selected spot in two minutes, with a large chemical fire-extinguisher and smaller extinguishers. It is doubtful if any other method can summon competent help as satisfactorily as a fire drill thus held at regular intervals.

The ward mattresses are equipped with four substantial loops at each side, and near the ward entrance are poles of such size that they may be pushed into the loops and the patients thus be carried in a mattress stretcher to a safe place.

In addition to bringing the fire extinguishers the orderlies are required to make ready these mattress bars in preparation for the removal of the patients.

The fire signal indicates where the fire is located and that it is to be attended to immediately.

"Drill, Ward 30," or "Drill, Ward C," means that there is a fire in Ward 30 or in Ward C.

FIRE RULES

A hospital employee, house pupil or nurse should telephone immediately to the information office the location of the fire if fire is noticed in any hospital building.

TELEPHONE OPERATORS

1st. Ring alarm at door of the admitting physician's office.

2d. Notify superintendent on duty, senior assistant resident physician, and Dr. Washburn.

3d. Call on the "Doctors' Call" telephone system, with all switches in use, to entire hospital, "Drill, Ward 30," or "Drill, Surgical Building," or whatever ward or region the fire may be in. Call three times distinctly. Repeat.

4th. Call the same signal on the house telephone, calling first the accident ward, then orthopedic shop, and all wards.

WARD TENDERS

1st. Report at once to scene of fire whether on duty or not, unless occupied in some unavoidable work such as a surgical dressing, or wheeling a patient, etc.

2d. Report to person in charge of fire.

3d. Close doors and windows, unreel hose, and bring in extinguishers and mattress bars.

4th. Elevator man to take elevator to basement for large chemical extinguisher.

5th. Accident ward man to go to ambulance men's sleeping quarters to make sure call is noted. Between 12 and 1 p. m. and after 5 p. m. on week days, and at any time on Sundays or holidays, obtain aid from ambulance quarters, unlock elevator and go to basement for large fire extinguisher.

NURSES

1st. Report location of fire by telephone to information office; be sure message is received.

2d. Nurse in charge to bring in extinguisher and direct unreeling of hose.

3d. No nurse is to leave her ward unless ordered to do so, or until all patients have been removed.

4th. Supervisors will report at fire.

5th. Head nurses shall send ward tenders to region of fire, if possible.

MECHANICS

1st. Report at once at region of fire.

2d. Machinist first to call elevator to basement.

3d. Two men from surgical apparatus shop to take large extinguisher in basement to fire.

SUPERINTENDENT ON DUTY

1st. Report at once at scene of fire and take charge until relieved.

AMBULANCE CORPS

1st. Notify men's quarters, also domestic building.

2d. Assist accident room man on Sundays and holidays, and between 12 and 1 p. m. and after 5 p. m. on week days; bring elevator to basement for large chemical extinguisher which is to be conveyed to the fire.

3d. Report at garage.

The fact that there is a definite routine to follow in an emergency such as a fire is an advantage in itself. At such a time it is well for the regular employees to know what to do and how to do it.

A New Bed Chart Holder

One of the problems in hospitals is the keeping of bedside records from the annoying inspection of patients and curious visitors, and at the same time to have the records readily accessible, and in clean and preservable form, the sheets firmly fixed so as not to fall out during handling or when hung up at the patient's bed.

I gave up a great deal of time to this problem. I visited several hospitals throughout the country and made rounds of the different stationers. I experimented with a number of devices of my own construction, two of which I had patented and which after a critical trial proved failures. At one time I thought I had the proper holder in a book cover, covered with cloth with a spring back. I soon found that the covers became dirty, could not be cleansed and tore easily. I then had the covers painted but that was unsatisfactory.

It then occurred to me that if I could get the identical "book cover" made up in a light metal, like aluminum, which could be easily cleansed, it would be the ideal thing. I had such a chart holder made up. It is a strong sheet metal holder, and unquestionably the most satisfactory device of its kind. It is made entirely of aluminum and is not affected in any way by moisture. It has a strong steel center rod and a coiled spring of great strength, securely reinforced and riveted and positively guaranteed against any defect in workmanship or material. It has a capacity for paper one-fourth inch in thickness and made with double hinge for flat opening covers. It is very light, easily and quickly adjusted to keep the charts in proper arrangement and uncrumpled, neat, straight and clean; it permits the insertion of additional sheets at any part of chart without disturbing the other sheets, and holds the sheets securely without perforating or marring the paper.

The cover serves to keep sheets clean and flat and at the same time prevents exposure of the records to those not entitled to their inspection. It takes up one-half the space occupied by the other chart holders, and makes it easier for the nurses to collect them in case they are kept at the bedsides. All who have seen the chart holder in use have remarked on the excellency of this device and have declared that it has filled a long felt want.

LOUIS J. FRANK,

Superintendent Beth Israel Hospital, New York.

NITROUS OXIDE ANALGESIA IN OBSTETRICS

**Intermittent Administration to Meet Each Pain Is Preferable to Continuous Method—
Enables Patient to Assist Throughout the Labor—No After
Effects on Mother or Child**

By E. I. McKESSON, M. D., TOLEDO, OHIO

NITROUS oxide analgesia is so unlike twilight sleep or anything suggesting sleep that had the word not been popularized with the public it would be better not to use even the term "*American twilight sleep*" to distinguish it from *Daemerschlaf*.

There is no sleep or even sleepiness and no loss of memory in nitrous oxide analgesia. The mother knows and understands everything, which is essential in obtaining her cooperation. The dressings are undisturbed, no one is needed to restrain her, nor are quiet rooms needed, or a corps of trained assistants to carry out the simple technic.

When the second stage is begun, or before, if the pains are causing the patient much discomfort, the method is explained to her in somewhat the following manner, emphasizing that her assistance and labor will be essential, and that she shall always watch closely for the first sign of each contraction, as the cue for beginning inhalations:

Nitrous oxide is an odorless gas, which is capable of relieving pain when inhaled. Less than six inhalations does not produce sleep nor in the least impair memory, but will relieve the suffering of childbirth. More than six inhalations usually results in unconsciousness, or anesthesia, such as is used in surgical operations, and is not desired, as a rule, in normal cases.

The dose required to relieve suffering depends upon the character of the pain and is regulated by the number of inhalations of nitrous oxide directed to be taken. There is this difference between nitrous oxide and other drugs or methods for the relief of pain, that nitrous oxide will produce analgesia in less than 10 seconds, while other drugs require many minutes to hours to afford the desired relief. Again, after stopping the inhalations of nitrous oxide and breathing air, it is eliminated through the lungs within a minute, while other drugs require hours. Herein lies the secret of success of nitrous oxide in its application to obstetrics. It is the only agent known which may be administered at the beginning of each uterine contraction, absorbed with sufficient speed to relieve the suffering and again eliminated from the body before the next contraction is due.

It is evident that, to obtain relief, it is neces-

sary that the inhalations must be begun promptly when the first symptom of the oncoming pain has been experienced. Also, the inhalations must be taken deeply into the lungs and quickly expelled until the required number (normally three) have been inhaled. The last breath of nitrous oxide inhaled should be held as long as possible while bearing down powerfully, so as to get the full benefit of the gas; and, at the same time while being relieved, to assist the uterus in expelling the child, making it slide a little every time.

As soon as air is again inhaled the analgesia begins to rapidly fade away, and by the time the contraction is over the analgesia is practically gone.

Analgesia does *not* relieve the woman of labor, and is not intended to. It does relieve pain, which makes it possible to work the harder through expulsive efforts at making the child slide through the birth canal. In fact, unless the mother labors and cooperates the progress of labor will be no faster than without analgesia; but with this assistance birth will take place in about half the usual time and without the usual suffering.

Particular attention will be required to see that the inhalations shall be started each time at the first sign of the oncoming pain or the analgesia will be a little late to relieve the pain completely. Again, care should be taken not to begin inhalations too soon, since the pain may come just as the analgesia is leaving. A few trials will soon teach when and how the inhalations are to be taken. "Just study it a little; it is harmless, and you will go through with no suffering after you learn the trick in the first two or three pains."

With these few explanatory remarks the patient usually becomes a close observer, and is not only interested in the relief it affords, but is occupied by the definite directions in assisting in the delivery of the child.

Nitrous oxide has probably been used millions of times by dentists for analgesia in the past few years without a case on record of any serious trouble. It is inconceivable that nitrous oxide in the stage of analgesia (where the patient is awake) should ever cause harm to either mother or child, with its record in dentistry, and since it is recognized as the safest of all anesthetics for Cæsarean section or other operations requiring unconsciousness. More than this, of the thousand

or more cases of obstetrics already conducted under analgesia none have been reported as unfavorable.

The apparatus required for analgesia may be very simple, indeed, it may be so small and automatic that it may be conveniently carried to the home with enough gas in two small tanks all ready for use to last for several hours. In normal cases a trained anesthetist is not required, since all that is needed is some one to apply the mask tightly over the nose and mouth while the patient inhales the number of breaths directed by the obstetrician, and then remove it. A large nitrous oxide-oxygen apparatus as ordinarily used for anesthesia may also be employed, although these often are not automatic and require experience in managing them.

There are different kinds of pains; some are slow in reaching their "peak," others are fast; some are weak and others are strong, but in the same patient, while the pains are somewhat variable from time to time, they usually retain about the same speed of onset. We are interested in the speed of onset and the duration of pains because we have to regulate our analgesia accordingly.

A fast pain requires fast analgesia. By diluting nitrous oxide with air its action is slowed, and the greater the dilution the slower the action. It is also weakened when more than 35 percent of air is mixed with it. So that a fast pain demands a purer or richer mixture of nitrous oxide (less air) to win the race with the pain than a slow one.

On the other hand, a fast analgesia used in a slow pain would be like the race of the hare and tortoise—the analgesia would fade away at about the climax of the pain.

Fortunately 10 percent of air fits most cases, and the others are easily controlled by changing the mixture one way or the other as the case may require.

In the last four or five pains before delivery the contractions may be very long, and the patient who, earlier in the second stage, had been taking three breaths of gas at a pain will now need the three breaths at the start, and the analgesia will need to be continued two or three times as long as before. The onset, however, will rarely change in speed. To prolong the analgesia after the first series of breaths have been inhaled, the mask is removed while the patient bears down. She then takes a breath of air, and is encouraged to bear down again. The mask is then reapplied for one breath of gas, removed for a breath of air, reapplied, etc., until the pain begins to fade.

When the head is to pass through the outlet it is usually best to administer about 10 inhalations,

inducing anesthesia or unconsciousness, especially if there is danger of laceration, since analgesia will not relieve the pain of a perineal tear.

In delivering the placenta analgesia may again be used, while stitches should be placed during deep analgesia or light anesthesia, induced the same as just described.

Normal babies breathe and cry promptly after analgesia, showing no cyanosis or effects of the gas whatsoever.

It is *never* necessary to produce cyanosis in the mother, and even in Cæsarean section, eclampsia, or difficult forceps cases, where *nitrous oxide and oxygen* is always the indicated anesthetic, the baby, if uninjured, breathes promptly without the usual spanking, etc.

The cost of analgesia for obstetric cases is trifling—about 35 cents an hour, depending upon the frequency of the pains and the number of breaths taken at each pain; while the second stage, in a properly managed case, is shortened by analgesia.

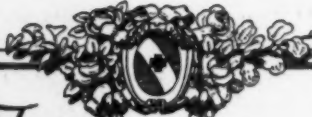
The above is a description of the intermittent method, which is obviously so far superior to the continuous maintenance of analgesia between contractions when there is no pain to relieve, that no consideration will be given to the latter.

The inhaler covering both nose and mouth is always preferable to the nasal inhaler, since often the patient must breathe through the mouth to get the gas in large volumes quickly, which cannot be accomplished with even slight nasal obstructions which are commonly encountered.

Miss Edith May Witman, until recently head clinic nurse of the Reading (Pa.) Homeopathic Hospital, is now in charge of the Pottstown Homeopathic Hospital, Pottstown, Pa. Miss Witman succeeds Miss Nora S. Huyett, who plans to take a post-graduate course at the Polyclinic Hospital, New York City, in the near future.

Mercy Hospital, Hamilton, Ohio, has recently fitted up new quarters for its nurses in a commodious dwelling convenient to the hospital. The building was enlarged and renovated, providing ample and comfortable arrangements for both study and recreation. The features of the home include a domestic science kitchen, with all of the requisites for students to pursue a nurses' course in this branch of training. The separate housing of nurses enables the sisters to devote more space in the hospital building to patients, which increasing demands upon the institution have made imperative.

Several changes have recently taken place at the Louisville City Hospital, Louisville, Ky. Miss Rose K. Golden, formerly superintendent of Mercy Hospital, Kansas City, Mo., has been appointed superintendent of nurses; Miss Flora E. Keen, of Somerset, Ky., has been made assistant superintendent of nurses; Miss Estelle Masterson, surgical supervisor; Miss Freda Payne, medical supervisor, and Miss Frances Conroy, night superintendent. The number of pupil nurses has been increased to eighty-two, including affiliated nurses from Waverly Hill Sanatorium.



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Announcement of New Departments

Beginning with this number of *THE MODERN HOSPITAL*, two new departments are inaugurated, one on "Sanatoriums and Sanatorium Progress," to be conducted by Dr. Albert Warren Ferris, director of the New York State Reservation Commission in charge of the Saratoga Reservation; and a department of "Institution Libraries," to be conducted by Miss E. Kathleen Jones, librarian of McLean Hospital, Waverley, Mass., and secretary of the Institutional Library Committee of the American Library Association.

It will be remembered that the late Dr. Mumford, one of the editors of *THE MODERN HOSPITAL*, conducted a sanatorium department beginning with the inaugural number of *THE MODERN HOSPITAL* more than two years ago; his department had demonstrated its wide and great usefulness. Upon Dr. Mumford's death it was thought best to discontinue the department until it could be placed under proper editorial direction that would promise a continuance of the great good that Dr. Mumford had begun.

THE MODERN HOSPITAL and all its readers are to be congratulated that Dr. Ferris has consented to accept the responsibility of this department now. Dr. Ferris's splendid activities at Saratoga and the high ideals that he has brought to bear in creating that great American spa is a guarantee

of the fine leadership that he can bring to bear in helping the sanatorium people of this country to better methods, better architecture, better equipment and a higher efficiency in their institutions.

A good many of our readers may wonder what a department under the head of "Institution Libraries" can mean; the question is answered by Miss Jones in the first instalment of her new department in other pages of this number; indeed, Miss Jones, in association with Miss Carey, librarian of the Minnesota State Institutions, and Mrs. Grace Myers, librarian at the Massachusetts General Hospital, has demonstrated the usefulness of such a department in the past several numbers of *THE MODERN HOSPITAL*, and it was because of such demonstration that the editors of *THE MODERN HOSPITAL* have concluded to inaugurate this department as a regular monthly feature.

It goes without saying that every institution should furnish its visiting medical staff and its house staff with proper scientific books for their study; it is also needless to propose that pupils in the training school and supervisors should have access to good books; we are now coming upon an era of higher class service to the sick in our hospitals, and entertainment, recreation and an attractive form of education are incidents in such service.

Some months ago the American Library Association, under the stimulus of Miss Carey, Miss Jones, and a number of associates, created the Institutional Library Committee, and these librarians, who have given an immense amount of study to their problems, seem now ready to accept leadership in this important subject.

THE MODERN HOSPITAL feels that institutional libraries are highly necessary, and it believes that even in the smallest and most modest hospital, general or special, some organized effort to bring good reading matter to the hospital family can be productive of great good.

Some Sources of Friction in the Management of Hospitals

Much of the friction generated in the movements of the machinery of a hospital can be traced often to a faulty organization of the executive staff. There may be a lack of definite knowledge on the part of the governing board, whether known as trustees or managers, of their most serviceable functions. These are legislative and supervisory rather than executive. The members of every such governing board cannot, without detriment to the welfare of the hospital, undertake to perform executive duties. They must rather delegate them to a good executive officer,

and should concentrate in him the actual control of all departments.

To use a phrase found in the regulations of one hospital, the superintendent should be "the authorized means of communication between the board of trustees and the various officers and departments of the hospital." In this manner only is it possible to maintain a uniform, just and well-balanced control. It is the duty of the governing board, it is true, to initiate all legislation and to settle the policy of the hospital, but the superintendent must be clothed with power to carry the decrees of the board into effect if they are to be effectual.

A similar practice is necessary to insure success in governmental operations and in large business enterprises. How unwise it would be, for example, even if it were possible, for the directors of an extensive railway line to concern themselves in the selection of conductors, brakemen and section hands and in the minor details of repairs and reconstruction along the line! The directors are responsible above all other things for the achievement of results; and to secure them they are charged with the supreme duty of discovering a competent executive to carry their will into effect. They cannot attend to details, and should not.

In some instances a hospital trustee may become interested in a special department, and in the course of time come to be regarded as its special patron and foster-father. It is often natural under such circumstances that the head of this department should feel that an appeal may be made directly to him in the interests of the department, without the knowledge of other members of the board or the cognizance of the executive officer. Such mistaken methods inevitably give rise to friction and difficulty. Trustees should be managers equally of every department and should content themselves with marking out the lines of work required to be performed by their various appointees. They should make no mistake in the selection of a proper man for superintendent, but when selected he should be clothed with authority over the heads of all departments and should be upheld in the exercise of such authority. He should be the intermediary of the board throughout the hospital and the agent of the hospital in its relations with the board. The current of authority should flow through him from above, and the desires of the heads of the different departments should be expressed similarly through him to the managers.

In the experience of hospital experts grave difficulties arise when an attempt is made to manage a hospital through an executive or governing committee of medical men rather than through a sin-

gle executive head. Many men have many minds, and these minds usually do not agree. All persons have not an equal talent for administration. One or two members of such a committee often have so much administrative talent as to be meddlesome, but the majority as a rule do not assert themselves sufficiently; the result is disorganization and inefficiency, or an irresponsible one-man power exercised for personal ends. Hospital managers should rather find a good executive head and commit to him the details of management. He should be clothed with adequate power and sustained in its exercise. Responsibility without authority is weakness.

HENRY M. HURD.

A Beginning Upon the Problem of Better Medical Care for the Middle Class

The Trustees of the Massachusetts General Hospital have approved a plan submitted to them by the General Executive Committee of the Staff for a consultation clinic for people of small means.

It is a platitude that the rich and the poor are well cared for medically, while the middle class is obliged to content itself with inferior treatment. The problem, as it presented itself, was how to have the hospital serve the last named class and at the same time do no injustice to the practicing physicians of the community. The solution has been reached in the following plan, which will be inaugurated at the hospital in the near future:

In the out-patient department building, which now stands idle in the afternoon, a representative of each medical and surgical department of the hospital, who is willing to undertake this work, will be on hand Tuesday and Friday afternoons at two o'clock. To this clinic physicians will be invited to bring or send their patients for a diagnosis. The hospital will expect to receive patients from families whose incomes are small, and will trust to the physicians referring the patients not to send here those of considerable means.

The fee contemplated for this work is \$5.00, with small extra charges for x-ray examinations and Wassermann and other tests. It is planned that the hospital shall retain from the fees the cost to it of conducting the clinic, and that the balance shall be divided among the physicians in proportion to the time and work which they have given.

It is hoped that as far as possible the physician will accompany his patient. If he does not do so, the hospital will communicate with him by letter, giving the diagnosis and outlining treatment.

It will be seen that for this one fee of small size the patient will receive the advantages of consultation in all the special departments which may

be needed for a diagnosis in his case. He will receive the aid of all the laboratories and skilled technic of a great center of medical knowledge.

Such is the scheme as it is outlined in our minds at the present time. It is a new departure and unlikely that we foresee in just which way it will develop, but that it is a step in the right direction we have no doubt. **FREDERIC A. WASHBURN.**

Civil Service in Hospitals

THE MODERN HOSPITAL has been acutely concerned about political interference, especially in state and municipal institutions. We have done whatever we could, in season and out, to help divorce institutions for the care of the sick from petty, vicious politics.

No doubt civil service is a fine thing under certain circumstances, and there is no doubt whatever that its sponsors have a mind single to a higher service on the part of employees, and that they believe the civil service to be a potent factor in that behalf.

But the civil service has failed up to the present time to serve any good purpose in the hospitals of this country. So far as this present writer knows, the civil service has never protected an executive officer of a public hospital nor held him securely in his place against the machinations and conspiracies of petty politicians. It seems that a civil service superintendent is quite as easily removed from office as one who has been appointed through political influence; charges can always be preferred, and the politicians have a code of charges that can never be disproved when they wish to get rid of a troublesome executive or make a place for a political associate.

Then, too, the position of hospital executive is one requiring the highest order of tact, skill and diplomacy, beside a knowledge of hospital practice; and no civil service examination that was ever contrived is able to establish the supremacy of one candidate over another in these respects.

One may find out in the civil service how much each man and each woman applicant knows about the business done in hospitals, but no civil service examination can inform an examining board which applicant would be best fitted to handle the help, to get along with the public and to give the doctors what they need.

Up to date, civil service as applied in hospital administration is a political cloak, and until some scheme can be concocted whereby the best executive can be selected, and whereby he or she can be secure in the position attained in spite of political exigency, then civil service is a hypocrisy and a humbug.

SOME ENGLISH HOSPITAL FOODS

Special Preparations and the Technical Methods of Making Them in London Hospitals

A recent number of the London *Nursing Times* quotes the following from *The Daily Mail*:

Albumin Water.—A valuable light food when milk proves indigestible is prepared at King's Hospital as follows: Cut the raw white of one or two eggs in several directions. Put in a large bottle, add half a pint of cold water, and thoroughly shake. Flavor with a little cinnamon water. At St. George's Hospital three eggs are used for half a pint of water, and the mixture is flavored with sugar. At the Evelina Hospital salt is used instead of sugar.

Barley Water.—This may be best prepared as follows: Add two heaped-up tablespoonfuls of well-washed pearl barley to a pint of water. Simmer for half an hour. Strain and flavor with the juice of one lemon and five lumps of sugar. (Westminster Hospital.) Or, for infants, put two teaspoonfuls of washed pearl barley in a pint of water. Slowly boil down to two-thirds of a pint and strain. (King's Hospital.)

Whey.—Add two teaspoonfuls of liquid rennet to one pint of lukewarm fresh milk. Stir and leave until firmly clotted. Then break up the curd and strain through muslin. (Evelina Hospital.)

White Wine Whey.—Add two ounces (a small wine-glass) of sherry to ten ounces (half pint) of milk. Heat nearly to boiling point. Allow to simmer until curd separates. Strain. Instead of sherry a tablespoonful of lemon juice may be used to make lemon whey. (King's Hospital.)

Artificial Human Milk for Delicate Infants.—This is prepared at Guy's Hospital according to the following directions: Add one drachm (a teaspoonful) of rennet essence to half a pint of skimmed milk. Warm to 96 degrees and place the vessel before the fire till the milk sets. Then break up the curd into small pieces, let stand for quarter of an hour; pour off the whey into a saucepan and boil it quickly. Take one-third of a pint of this whey and while it is still hot add quarter of an ounce best sugar. Let it cool, and when cold add two-thirds of a pint of new milk and two teaspoonfuls of cream. It should be prepared fresh every twelve hours.

Peptonized Milk.—Mix two-thirds of a pint of milk to one-third of a pint of water. Divide in two, boil one half and add it to the other cold half. Put into this one peptonizing powder (obtainable at the chemist's), mix, and keep in a warm place for ten minutes to a quarter of an hour. Bring to the boiling point. (St. Mary's Hospital.)

Peptonized Milk Gruel.—Make half a pint of gruel, and while boiling hot pour it into half a pint of cold milk. Add five grains extract of pancreas and fifteen grains bicarbonate of sodium. Keep in a covered vessel in a warm place for two hours. Boil for three minutes and strain. (Evelina Hospital.)

Raw Meat Juice.—Press thinly sliced beef in a meat press, or finely mince the meat, sprinkle with salt, add its own weight of cold water, let it steep for a few minutes and then strain by pressing through stout muslin wrung out of cold water. (St. Thomas's Hospital.)

Mutton, Veal, or Chicken Broth.—Prepare in the same way as beef tea.

A small hospital for children is to be erected in connection with the Children's Home, Sioux Falls, S. D. The dimensions of the building, which is to consist of two full stories and basement, will be 34x26 feet. Each floor will be divided into two ward rooms, diet kitchen, bath and toilet. The second floor will be used for cases demanding strict isolation and is not to be connected in any way with the first floor, being accessible only through an outside door and stairway at one end of the building. The exterior construction will be of stone, and the total cost, including equipment, is estimated at \$6,000.

Miss Barbara E. Jacobson, for the last three years assistant superintendent at the York Hospital and Dispensary, York, Pa., has resigned to accept the superintendency of a hospital in Kentucky.

HOSPITAL, MEDICAL and SPECIAL MEETINGS

Possibilities of Future Development in the Service Rendered by a Hospital to a Community¹

BY ANDREW R. WARNER,
Superintendent Lakeside Hospital, Cleveland.

Fundamentally hospitals are of one type of institutions created by society for service to society. Their existence implies a need for the service and their future growth depends upon the degree of usefulness that can be developed. Beyond and above a hospital's service to the individuals in its beds, to the medical profession, to the cause of medical education, and to the growth of human knowledge, stands that hospital's final, resultant, real service to society as the ultimate measure of excellence. It is the whole of which all of the many other functions of a hospital are parts—important, essential, but only parts. There is yet occasionally a hospital performing only the first elementary function of a hospital—the furnishing of bed and board to individual sick; but there are now many at the other end of the scale giving service which is the product of hands skilled in many ways, and the work of several professions—at least of the nursing, the medical, the ecclesiastic, and the sociologic professions. These hospitals can render the greatest service to society; it is these, therefore, that society will in the end elect to preserve and support.

In a single paper one cannot discuss all the possibilities of future development in the service rendered by such hospitals to society; there are too many of them and but few can be selected.

PREVENTION OF DISEASE AND PUBLIC HEALTH

The era of prophylactic medicine is no longer a hope; it has come, a reality in fact, though it will develop in degree. The health centers that have been established, the more frequent routine of periodic physical examinations, the work of the factory physician and social service department, and the frequent use of the visiting nurse by insurance companies, indicates that individuals and corporations are becoming convinced that in days of health and productive labor it already pays better than its cost. There is now a general recognition that it is better charity to keep a man from the need of a hospital bed than to care for him when in one.

The composition of the average hospital ward is a public disgrace and a reproach. Here we find typhoids because they drink our sewerage; visceral and brain syphilis because doctors, dispensaries or hospitals have been too careless about letting patients slip away half cured, a menace to others and a prospective public burden; here is sometimes tuberculosis, but never chicken-pox, because the community calls chicken-pox contagious and isolates it, though as yet it does not isolate tuberculosis; here are men sick because they worked in a danger of which they knew nothing; here is a long line of men useless from the

primary and secondary effects of alcohol. Hospitals see the needlessness, the ridiculousness of it all even better than others, and although it often means hard work to raise the money to pay the cost, they generally endure it in silence and with a degree of inaction that does not indicate patience or any other virtue.

If a factory begins to send to a hospital cases of lead poisoning or other industrial disease to fill the spare beds, there is a sacred duty, a trust, to be fulfilled: not to appeal to the trustees for more beds for these poor sufferers, but to tell the facts, all the facts, to the local authorities, to the state board, and to the public. What the authorities cannot do to force a correction of the faulty working conditions public opinion can, and it will be done. Then the extra beds will not be needed. It is not always a compliment to a hospital when some factories elect to patronize that hospital; and if a hospital's collective conscience and regard for duty can be kept dormant by the prompt payment of ward rates, it is thereby classified, if not standardized. The public has long talked about cemeteries as the burying ground for the results of medical incompetence, and the public is beginning to talk about the hospital record room as the burying ground for the responsibility for human lives carelessly, needlessly, wrongfully damaged or lost. A policy of silence, inaction, disregard toward industrial carelessness and other causes of needless suffering and death makes the hospital an accessory to the crime. The working conditions of some manufacturing plants are wrong entirely through ignorance and not with wilful carelessness. But this does not lessen—it increases, rather—the hospital's responsibility to make the effort to relieve the detrimental working conditions; for the hospital's story, told direct to the managers, will in such cases promptly bring the desired results.

The preservation of public health in all its forms is a major work for every hospital. No contribution of facts pertaining to public health problems can in any way equal that collected by hospitals. This is due to the fact that the records are written, that both the primary and secondary diagnosis are collected together in the indexes, and that large series are rapidly collected. The poor, the people reached best by hospitals, are affected first and most by community conditions unfavorable to health. The outpatient department, because of its numbers, is extremely sensitive to changing conditions. The diagnoses made in a day or a week are a fairly accurate picture of the state of the public health in the locality, a fact just beginning to be put to any use. We are the keepers of public health more than we sometimes realize. In these days cities have epidemics of small-pox only when some dispensary misses that first case from the crowded foreign settlement.

Dispensaries will not always be departments or adjuncts of hospitals—"poor relations," as they have been called. The public interest will follow the profession to the newer fields. Although the man with tuberculosis, brass poisoning, or typhoid will continue to get the most careful attention, the keen interest and the higher regard will be placed in the work of preventing others from getting the same troubles. The primary philanthropic institution will then be the one in the closest contact with the people, the dispensaries, and the one which writes daily in its records the danger signals and the forecasts of the health of the community, now so little considered. Financial support always follows interest. Around the dispensary will be grouped the acute wards, the convalescent hospital, the hospital farm, the departments to train the maimed and handicapped back to usefulness, and other departments. Such an institution will be equipped to mend the accident or misfortune in the best way possible at the

¹Paper read before the Seventeenth Annual Conference of the American Hospital Association, San Francisco, June 22-25, 1915.

same time that it is promptly preventing more from the same source.

Sometimes even our routine work and records can be used quite effectively. When the Social Betterment Committee of the Federated Churches of Cleveland decided to attempt to secure the closing of the segregated vice district, the ministers counted the men and boys who visited this district, and asked what the harvest must be. The two hospital superintendents who were members of the committee counted the cases of disease coming to our clinics. We questioned every man as to the source of his infection and were soon able to demonstrate that 40 percent of the fresh infections with venereal disease was acquired in this small isolated vice district, although only 10 percent of the prostitutes, street walkers, and other habitually immoral women known to the police, were inmates of this district. We brought the mayor and chief of police of the city to our clinics, not to point out the wealth of our clinical material, but to show them the constant stream of needless human suffering that came from this district to overwhelm the offenders and the innocent of this and succeeding generations. We opened our hospital records to them that they might realize the aftermath. The result of it all was the addition to the plans of our City Hospital of a pavilion of one hundred and fifty beds for the isolation of the venereal diseases together with an increase in the beds now available, and recently, too recently to count our gain, the complete permanent closing of the district by a forceful, sincere mayor and an efficient chief of police, equally determined to rid Cleveland of all traces of commercialized vice. The crowding in our dermatological clinic will, I believe, soon become a little less troublesome.

The fields for service to public health and preventive medicine open to hospitals are as yet mostly possibilities for future development, but the proper use of our records and opportunities already promises to prevent more disease than our beds could possibly relieve with treatment. Incidentally the record room work gets results cheaper than the ward. Is the "*summum bonum*" the medical profession or is it public health?

THE BROADER FIELD

The present also reveals to us the beginnings of a recognition of our broader responsibility to a patient. Usefulness is the measure of life and life's happiness. It may be lessened or abolished by disease and thereby bring not only dire misfortune to the individual, but a problem to society. Such a problem begins when full usefulness ends; it is solved only when usefulness is again restored. To hospitals society assigns the solving of these problems when the individual's resources are inadequate. The limits of the hospital field are therefore from the ending of usefulness to the restoration of usefulness. Social service, as we now know it, is but the beginning of the reorganization of hospitals to assume the full responsibility for the assigned problem and a promise of farther development, not a finished product. The hospital social service worker recognizes these broader limits of the hospital field in the daily task of getting someone a job and back to work, to normal life. The interval between the discharge from the hospital after an acute illness and the day the man can return to work is usually a dangerous risk at least, if not a serious damage, to a workingman. Supervision of convalescence saves many chronic conditions, many over-strains, and many lives, and it is inevitable that at some time it will become general. Hospitals must make the use of convalescent departments a routine. The longer stay in the wards at high cost cannot com-

pare in value with the far cheaper and better farm life, the open air, the sunshine, and the graded schedule of work in the garden to bring a man back to working condition. This and much more will come when the hospital's work ends, not when the patient is "able to go home," but when he is "fit to go to work." The responsibility to furnish the most effective and the broadest service cannot now be abrogated by any hospital; it can only be ignored.

RESEARCH AND EDUCATIONAL

In the last few decades many medical schools have established chairs of experimental medicine and have provided ample laboratory facilities for border-line work with good and sufficient results. Notwithstanding the work of these university research posts, there has come to hospitals a feeling of direct responsibility to increase the store and use of medical knowledge by actively encouraging, instead of passively permitting, the study of problems presented by its patients. Animal experiments done in hospitals, and laboratory work, to prove and to check the theories, explanations, and observations of the staff, are becoming more common. It is in the hospitals that the practical clinical problems actually present themselves, and there is a growing belief that it is in the hospital that most of these, by a shrewd guess, or keen logic, will not only be solved for the day, but will be so proven by animal experiments and other means that the work will reach and be of value to others and a benefit to posterity.

There is another benefit from the cost of experimental work, often, if not always, worth more than the knowledge gained. Hospitals are becoming progressively more and more interested in the training of young medical men for their own future use and for others. Without experimental work these young men are trained to depend on the say of others; with it they are trained to think and to prove. Surely the latter will produce better men. To the local dwellers a hospital is a building of brick or stone, for the care of the sick; to the world, to society, it is a group of men of a certain caliber, bringing forth results of a certain worth. It pays to train men right. Lakeside has recently backed this belief by adding five men to the resident staff and equipping a new laboratory, in order that thoughtful observation, study, and demonstration, or "research work," as it is often called, may be increased among them to the extent of five men's full time. By no means does this make our hospital the leader in this particular, but rather a follower in a line that is content to look to the future for even moderate results. The clinical clerk is another evidence that hospitals are taking an active interest in medical education.

COOPERATION AND MUTUAL HELPFULNESS

The idea of mutual cooperation between hospitals, as it is developing, is hopeful and prophetic. The very idea of active competition between hospitals, of a bitterness of feeling, and of any rivalry that is not absolutely free from thought of gain to self, and due simply to altruistic eagerness to serve better, is repulsive; it is entirely foreign to the purpose of all endowments, grants, or expressed tenets of purpose of any hospital. The public servant, institutional or individual, that reveals for an instant a selfish aim is instantly discredited. Honor and gratefulness are but the acknowledgment of debt for uncompensated service. The union of hospitals to increase the ultimate service to the community is broadening in scope. New York hospitals have united to lessen waste in buying. Philadelphia hospitals have united in an effort to increase the individual efficiency of the institutions. The New York dispensaries have united for the primary purpose of increasing the com-

bined contribution of all the local institutions to the public welfare of the community, helping each to fit its work to the others and to the existing needs, eliminating overlapping and wasted energy. The Cleveland hospitals have done the same thing. Surely we may look forward to the day when all hospitals shall present to society harmonious, united service, adapted to the needs of the time in absolute unselfishness and with the greatest care.

REAL RESULTS

What are days and weeks spent in a hospital worth to patients, and what do the "cured" and the "improved" in the discharge notes of medical and surgical histories mean? Dr. Codman, of Boston, has been asking these questions for some years. A few hospitals are now really trying to find out by thorough follow-up systems how beneficial the average "cure" proves to be, and to appreciate the later influence and the final effect of particular treatments. We are entering on the stage of the collection of the actual results as fundamental facts. From these there will come comparisons, deductions, lessons learned, and, based upon these, future progress in many ways. Known results can be compared with the cost—one method with another; and society will be able to buy its health more intelligently.

Many who have thought about the growth and development of the medical sciences, the shifting of the professional aim from treatment alone to individual prophylaxis, and the expansion of prophylaxis to the community, and who have then realized that this was simply intensified public health work, have reasoned from this conclusion, and from the growing recognition that all is for service to society, that in the end the medical profession and all institutions contributing to the preservation of health "must become a function of the state." But society has other professions and other institutions existing to protect and advance itself, and the same principles of greater, broader service pervade many such. All that render good service cannot become "functions of the state," as we now understand that term. There would be nothing to do worth the while outside the state. Such a condition can be only when state and society become synonyms, when statecraft and the science of society are one. This may come, but it will come through the socialization of the state and its elevation almost to perfection in grasping and enacting a wiser public will, and not by the extension of political control of the present type to and over the professions and institutions. Active participation by the profession and by hospitals in the solution of public health problems and the acknowledgment that the logical test of excellence is the ultimate value of the service to society will bring no crisis, no conflict with the state. Ideals and service will guarantee respect and position tomorrow just as they do today.

Illumination of a Modern Hospital¹

BY DAVID CROWNFIELD,
Boston.

The artificial illumination of a hospital is probably as complex a problem as may be presented for solution to those to whom the handling of such matters is a matter of daily practice.

When I promised the late Dr. Mann that I would prepare a paper on the subject for delivery at this convention, I had, it is true, some idea of the almost limitlessness of it, but I did not, perhaps, realize fully how limited was the time that could be assigned to so far-reaching a sub-

ject in a convention where so many subjects are legitimately pressing for presentation.

The interplay of physics, physiology, psychology, and last, but not least, of economics, is constant. The presentation of any one of these aspects of the problem is a subject in itself. The field of research is as yet almost untouched; of data on the subject there is almost none whatever; and consultation with those using artificial light in hospitals often produces diametrically opposite expressions of opinion on the subject of what they consider good light in a hospital, or in some of its highly specialized parts.

On the building of a new hospital a recent article has this to say:

"In considering material and equipment for a new building, emphasis should be laid upon the fact that the use of cheap materials and equipment involves always high maintenance cost and often irremediable dissatisfaction. Extreme care should be exercised that only those materials should be used which will exactly fill all requirements and prove durable. This should apply to every detail of the building and its equipment. Better sacrifice in amount than in quality."

Of all the factors entering into the construction and equipment of a modern hospital, to none are these words more applicable than to the artificial lighting equipment installed in the building.

It is probable that in no other class of building extant, in the last two decades, has the relation of the architectural members, such as floors, walls, ceilings, trim, etc., to the use of the building in which they are placed, undergone so rapid an advance in fitness as have these several parts in the modern hospital building, where it has been built along advanced modern lines. It has been a battle between the right angle and the quarter circle, in which the latter has won out. This tendency has only recently begun to show itself in lighting fixtures, and is one of the points that should be looked for in the selection of a modern lighting equipment. Together with all other things, the lighting equipment should show fitness for the place in which it is to be used.

INAPPROPRIATENESS IN FIXTURES

In a recently completed hospital, the fixtures installed in some of the main rooms were square in section throughout their various parts or members, and these fixtures were fitted with shades with V-shaped indentations on their surface. The fixtures and shades were wholly inappropriate for the building in which they were placed.

In another building, finished within a year, the writer was assured that modern, up-to-date lighting fixtures had been selected. On inspection these were found to be ordinary fixtures, suitable in part for a private house, or in some cases for an office building. They bore no relation to and possessed no fitness whatever for the otherwise highly specialized building in which they were placed; and this was supposed to be the last word in a building of its type.

In quite a number of recent hospital installations, open top inverted bowls have been installed. No more facile method could possibly be devised for the collection of dust on the fixtures not in use, or for the dissemination of dust, or germ-laden dust, by ascending hot air currents, when the fixture is lighted. A flat glass cover over the bowl is not quite, but almost, as bad. It may be taken as an axiom that no suspended bowl either of glass or any other material, or any shade of any kind whatsoever, with an open top towards the ceiling, should ever be used in a hospital, as it is a direct contravention of all those principles towards which we should constantly aim.

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The principal enemies of a good lighting system are the cost-per-cubic-foot and the cost-per-bed methods of computing the cost of a hospital. The principal factors to be considered in our problem are, efficiency vs. economy and fitness vs. economy.

And while economy has always to be considered in any undertaking, it should never be permitted to dominate the selection of lighting fixtures any more than it would be permitted to qualify the judgment of a physician or surgeon in the selection of other instruments he uses in the practice of his profession. As a hospital is supposedly a concentration at one point of all those things that make for the saving of human life, it goes without argument that the lighting fixtures should have not only fitness for the building, but should also be peculiarly fitted for the particular spaces in which they are used.

FITNESS VS. ECONOMY

Economy in lighting fixtures can best be achieved through standardization and repetition, but these are primarily permissible only in the structural parts of the fixtures and in the repetition of those structural parts throughout the various types of fixtures required for different needs. The constant repetition of a few individual types only throughout the building or group of buildings will give very poor results; such a fixture layout would be thoroughly lacking in fitness to accomplish the varied purposes of the installation.

GROUPING OF ROOMS AND FIXTURES

The primary step in the artificial illumination of a hospital is the division of the rooms into groups, including within each group such rooms as will permit of similarity of treatment in the lighting fixtures and in the disposition of the light. We may further subdivide each group and assign to the various rooms special treatment if the means are at hand to warrant it.

The natural grouping upon the most economic basis would be: porches and vestibules; corridors, lobbies, and solariums; administration and connecting public rooms; examination and orthopedic rooms; operating and delivery rooms; service and other working rooms; wards of all kinds; help of all kinds; closets and small spaces; and fixtures for the machinery and power rooms and similar spaces in the basement. The assignment of all spaces strictly to some one of these groups should take place only where rigid economy is essential.

A better working and more practical layout of the rooms and spaces would be according to the following groups:

The exterior fixtures: the vestibules; the first floor entrance lobby and main corridor, and lecture rooms; all other corridors; small passages; and the office and reception and other principal rooms that generally lie to right and left of the principal entrance. The superintendent's room; the matron's room; diet and other kitchen and serving rooms; major and minor operating rooms and amphitheater; autopsy and delivery rooms; large wards and isolated rooms; small wards; private rooms; door call signal lights outside of private rooms and small wards; rooms in service portion; spaces in machinery and similar parts of the building.

METHOD OF PROCEDURE

The usual course of procedure in laying out a lighting scheme is to plat in some convenient spot on the plans, figure out and indicate a quantity of light that will light the room, and finally to select a fixture which will fit these conditions, and perhaps by some happy chance bear some relation to the room in which it is placed.

In a hospital building the exact reverse of this course

should be followed. As the rooms and spaces are almost invariably designated for some special purpose, we should first select a lighting fixture that will meet and further the accomplishment of that purpose, next we should compute the amount of light or current necessary to do what work is to be done, and lastly we should plat the outlet where it is intended to use the light.

As an instance of the merit of this method we can say that the best method of lighting operating rooms has been arrived at by this course of procedure. It indicates a distinct line along which advance can be made in the perfection of the types of fixtures used.

In contrast with the development of a model type of fixture, the computation of the quantity of light required and of the location of the outlet to carry the fixture are quite simple subordinate problems.

TYPES OF FIXTURES

The fixtures to be used in a hospital may be of the direct, semi-indirect, or indirect type. We are using the terms as only applicable to the fixtures suspended from the ceilings. By direct fixtures are meant those with downward directed shades, which are usually suspended from the lowest point of the fixture. Advisedly these should not be too close to the ceiling, or very little reflection therefrom will take place. Neither should they be hung less than seven feet from the floor.

By semi-indirect fixtures are meant those in which the lamp is suspended in a glass diffusing bowl, through which part of the light is transmitted and diffused while part of the light goes to the ceiling, and is reflected therefrom around the room. This type of fixture should never be used without a glass dust cover over the bowl, which should not be flat.

By indirect fixtures are meant those in which the lamp is suspended in an opaque bowl with a highly polished reflector on the inside. If the reflector is properly designed it will reflect about 80 percent of the total or spherical candle power of the lamp against the ceiling, where it will be re-reflected around the room. Fixtures of the indirect bowl type should also never be used without a glass dust cover, which should not be flat.

Indirect fixtures are best fitted for entrances, lobbies, main corridors, offices, and lecture halls other than amphitheaters.

Semi-indirect fixtures are best fitted for large and small wards and private rooms. They are also the best, in an especially designated type, in operating, autopsy and delivery rooms.

Direct fixtures are best fitted for all rooms other than the above mentioned, where through reasons of economy it is not permissible to go above certain cost figures. When used in rooms where any continuous work takes place they should usually be hung at such a height that they do not come within the direct line of vision.

There is another type of direct lighting in which the lamp is enclosed in spherical or elongated globe. This may be called the direct diffused system. It is not an economical method, as considerable of the efficiency of the lamp is absorbed in the globe; but on the other hand it diffuses the light in all directions, and as the distribution of light from a tungsten filament is in section something like the shape of a butterfly, this method supplements the light in the dark places. This is its chief virtue, together with the fact that under the diffused light which it gives, pupillary contraction almost never takes place. If sufficient quantity of light is not thrown upon a given point, eye strain will occur from straining to see.

The difference between the three methods lies in their

effect upon the organs of sight. Under the direct method, with an open downward reflecting shade a relatively strong zone of light is produced directly beneath the shade. If this light falls upon a polished, white, or reflecting surface, or if any rays directly reflected come within the range of vision, eye fatigue ensues, and pupillary contraction takes place. The result of pupillary contraction is to compel a given amount of work to be done by a smaller portion of the retina than usual, which results in excessive eye fatigue and consequent strain.

Is it possible, it may be asked, to light a hospital throughout satisfactorily by any one of these methods alone? It would require expert knowledge to do so. Only a few of the factors which would have to be taken into account in a lighting scheme are known, such as the strength or quality of light gathered at one or more points, its brilliancy, and its color; the surroundings or environment in which the light is used, and their color; the surface on which the light falls, either dull or semi-glazed; the presence of color in the room; the presence of shadow-casting objects as rest spaces for the eye.

If direct fixtures are used in wards and one-bed private rooms, they should be kept out of the range of vision of the patient. The same is true of semi-indirect fixtures, unless a transmitting glass is used which will modify the color quality of the light. Indirect opaque bowl fixtures can not be used in wards and private rooms unless the quantity of light is kept low in candle power so that the intrinsic brilliancy of the walls, and particularly of the ceiling, is kept low. Highly lighted ceilings would be very annoying to a patient.

Accepting without discussion the theory that the rods and cones in the eye transmit to the cerebral centers the sensations of light and color, that the rods respond to form and to white, gray or low light, and that the cones respond to color, it behooves us to select such glassware that both the rods and cones will divide the work to be done between them. This is particularly important for those rooms where patients are and where the cost of fixtures that will give both the sensation of white and of colored light is an item to be considered. There are to be had at the present time two types of glassware whose modifying tendencies are in the proper direction. One of these types is a mixture containing opal. In the manufacture of this type the glass shades are made in moulds under forced pressure, which drives the small particles of opal evenly throughout the mixture, where they are caught and held by the cooling glass. The result is a glass of semi-transparent quality with high transmitting properties and of a slightly greenish-yellow color. The so-called Velleria, Druid and Alba glass, is of this type. Its virtue lies in the fact that the greatest sensibility of the organs of sight at ordinary intensities lies somewhere in the greenish-yellow, and in so far as this kind of glass modifies the white light of the tungsten and still whiter light of the nitrogen filled lamp, it aids vision without causing eye-strain or fatigue.

There is still another kind of glass which is made by the plating process. Its structure can be seen by examining its edge, which shows an inner layer of clear glass, a middle layer of opalescent glass of a slightly greenish-yellow color, and an outer layer of clear glass whose outer surface has through acid action been given a satin finish. When a lighting fixture fitted with this glass comes within the range of vision, the center of the shade, through which the light passes directly to the eye, partakes of the greenish-yellow tone, while the outer surface of the globe partakes more of the quality of opal and inclines to a grayish-white in value. We have then an effect of slight

color in the center of the shade, while its outer edges, which come into conjunction with the form or shape, are grayish-white.

In the case of this glass the rods and cones of our visual apparatus are both actively employed and eye strain and fatigue do not ensue.

EXTERIOR AND VESTIBULES

The exterior fixtures should be simple in design, with the light enclosed in a globe, since such a globe will disperse the light much better than a hemisphere. The same is true of the vestibule.

HALLS, LOBBY AND ADJOINING ROOMS

The entrance hall, and possibly the lobby, the adjoining corridor, the offices, reception rooms and other purely administrative rooms should each be lighted by a single indirect fixture of bowl type with light hung perpendicular to the ceiling. The bowl should have a properly shaped dust cover. The quality of the light required in each place can easily be obtained by adapting the size of the lamp to the requirements of the situation. Indirect fixtures are also the best for use in lecture rooms. Indirect fixtures with more than one light should be avoided, since multiple light fixtures of this kind require a bowl of considerable diameter, which acts as a large-surface depository for dirt.

Indirect fixtures are the best for the rooms and spaces just mentioned because, if properly installed, they will disseminate the light evenly over any space where it may be desired. For certain purposes they are the most scientific fixtures in existence today.

SMALL CORRIDORS AND PASSAGES

Small corridors and passages throughout the building may be lighted more economically, as far as the first cost is concerned, by direct fixtures with proper shades to disperse the light over the required areas.

ISOLATION AND EXAMINATION ROOMS

Isolation and examination rooms can best be lighted by direct fixtures, with downward reflecting open shades and lamps of sufficiently high candle-power to give a powerful concentrated light. The same is true of diet and other kitchens.

OPERATING ROOMS

Operating rooms have been lighted in an infinite number of ways: by a single light, direct type, pendant, placed directly over the table; by multiple light concentrating reflectors, placed within a single shade over the table (and this type is the least suited of any, as it is a powerful temperature raiser); by a circular ring of lights placed sometimes on the ceiling, and sometimes on a pendant ring, with the shades set at angles which concentrate the light in the center of the operating table; and by means of an adjustable crane having a cluster of lights at the end of the crane arm, which can be swung from over the patient and adjusted outwardly from its support and up and down by means of a worm. The best method of lighting an operating room is by means of four pendant lights, hung at the four corners of a rectangle approximately 6x7 feet, with the short sides parallel to the window which lights the operating table by daylight, and with the center of the rectangle directly over the table.

One of the best pendants of this type has a lower glass diffusing bowl, on which is superimposed a glass dust cover. Above this is an adjustable deflecting shade, which permits regulation of the light to be concentrated on the operating table. These fixtures are adjustable and concentrating, diffusing, yet powerful, and are not over the

patient and so do not endanger the success of an operation, either from heat or dust particles.

DELIVERY ROOM

The delivery room can best be lighted by the fixture I have just described, as its adjustable mechanism permits the directing of the light wherever it is desired.

AMPHITHEATER

Amphitheatres and class demonstration and operating rooms should also be lighted in the manner just described. In these rooms the long side of the rectangle from the four corners of which the fixtures are hung should be at right angles to a line drawn through the operating table and the center of the amphitheater.

Autopsy rooms should be lighted in the same manner, and with the same type of fixtures recommended for operating rooms.

LARGE AND SMALL ROOMS

Wards should be lighted by pendant fixtures of the semi-indirect type with translucent bowls of glass, possessing the qualities previously referred to under the subject of glass. These bowls should have glass covers and should be supported by a center stem and not by chains. It would be a good thing if wards could be fitted with a system of dimmers, as anyone at all familiar with conditions as they occur in wards knows that there are times when very much more light is required than at others. In all wards there should be a portable light beside each bed, and this should be of such design that it can be hung on the wall or can stand on a table.

PRIVATE ROOMS

The writer once asked a patient in a private room where he thought the light should be placed in the room. "Under the bed," was the instant response, "where it can be buried or reached if desired." Private rooms, being really wards on a small scale, require similar treatment, with the same type of center pendant fixture and an interchangeable, standing and hanging portable lamp beside the bed. The center fixture should be of smaller scale than the regular ward fixture.

DOOR LIGHTS

Red and green signal call lights should be placed outside of the doors of private rooms. A new fixture of this type has a diaphragm between the two colored lamps, which excludes the possibility of both lamps appearing to burn while only one is really doing so. This is an improvement, as it obviates the possibility of the doctor and nurse both being called when in reality only one lamp has been turned on.

All other rooms in hospitals for economical reasons should be lighted by pendant fixtures, with downward opening shades, with bowl frosted electric lamps, or with brackets with similar shades.

QUANTITY OF LIGHT TO BE ASSIGNED, AND ITS CONTROL

The problem of the quantity of light to be assigned to the various rooms in a hospital is a complex one. It depends not only upon the use the rooms may be put to, but upon the classification of the hospital, whether general, contagious, for incurables, for the insane, for children, or for other purposes.

THE LOBBIES

Main corridors, offices, and reception and examination rooms should be well lighted with an assignment of at least one watt per square foot of superficial floor space, this computation, like all those that follow, being based

on the power of tungsten filament lamps. Small corridors and passages do not require over a half a watt per square foot of floor area. Officers' or nurses' living quarters and service living quarters do not require over a quarter of a watt per square foot of floor area. The same is true of bathroom and toilet rooms. Orthopedic and delivery rooms require an assignment of two watts per square foot, as do lecture rooms.

Operating rooms may be reduced to a supposed field of 12x15 feet, which should be treated with four units of fixtures, each with a capacity of 300 watts. Such an arrangement, with the proper fixtures, will deliver on the field of operations 14 foot-candles, which is sufficient for the performance of any operation.

There are on the market single unit fixtures, delivering 40 foot-candles on the table. The consumption of visual pigment under such a fixture is such that seeing efficiency falls off very rapidly, and the added candle power is a detriment and not an aid in the performance of the operation. Furthermore, fixtures of this kind raise the temperature directly beneath them from 12° to 20° Fahrenheit, on the harmful effects of which, in some operations, it is not necessary to dwell here.

LOCATION OF OUTLETS

In the location of outlets we have to take into account a purely physical factor resulting from the way lamps are constructed, viz.: The angles within which shades deliver their maximum efficiency or amount of light. It is upon this efficient angle that proper light distributing shades are constructed.

Outlets in the corridors and passages should not be farther apart than twice the width of the corridors. In reception rooms and offices the outlets should be centered so that they form squares not exceeding 16 feet on a side. The same is true of all rooms other than operating rooms; these should be placed at the four corners of a rectangle approximately 6 feet by 7 feet on its sides.

Delivery rooms should be divided into squares with a light in the center of each square, which generally should not be more than ten feet on a side.

The same is true of autopsy rooms. It is not possible here to more than touch on this subject.

This paper is intended to suggest lines along which studies can be made of a very important subject by those who are also in direct connection with the problem.

With regard to lighting schemes already extant in hospitals, I would suggest the following as a line of examination:

1. Is the lighting efficient?
 2. Is it scientific and fitted with scientific glassware?
 3. Is it so planned as to fixtures, layout of outlets and quantity of current consumed that it is economical?
 4. Are the fixtures such that it is possible for the hospital to do its best work?
 5. Are the physicians and surgeons satisfied with the artificial light under which they are carrying on their practice?
 6. Has the hospital spent sufficient money for its lighting layout to be at its best for everyone, physically, physiologically and economically?
 7. Does the hospital keep records or data of the efficiency of its lighting system, as far as the physicians, surgeons, house force and patients are concerned?
- It probably does keep such data regarding other factors affecting its patients; and it seems advisable that lighting efficiency data should also be kept in order that the science of artificially lighting the hospital may keep pace with the progress of all other departments.



CURRENT HOSPITAL LITERATURE

ALBERT ALLEMANN, M. D., Foreign Literature.
Army Medical Museum and Library, Office of the Surgeon-General
United States Army.

Clinical Records. Eugene S. Kilgore. Cal. State Jour. of Med., 1915, XIII, No. 11.

The form for history and physical examination found satisfactory and useful in teaching and standardizing the clinical records of the University of California is outlined in detail.

Inebriate Hospitals. T. D. Crothers, M. D. Med. Record, 1915, LXXXVIII, No. 21.

The work now being done toward prevention and cure of inebriety and alcoholism in a few special hospitals in the United States is finally along rational scientific lines. There is without doubt a real need for more institutions of this class properly organized to give psychical as well as physical and medical treatment. Dr. Crothers is certain that more than a hundred such hospitals could be added to this field and be kept constantly filled to overflowing.

A Grave Hospital Question. Ed. N. Y. Med. Jour., 1915, CII, No. 21.

The reported proposals in the budget of the Board of Estimate to combine the Seaview Tuberculosis Hospital and the county almshouse is stigmatized as unnatural, unsanitary and a wild leap in the dark. No one should question the statement that "the vision of a fine hospital in disorder, of the sick untreated, of the pauper and decrepid gathered together with disease; the whole system of hospital work, research, finance and management depleted of labor and proper medical service, is not a vision of the scientific economist."

Sanatory Agricultural Colonies in France (Colonie agricole sanitarie in Francia). Ospedale Maggiore, Milano, 1915, III, No. 7.

Agricultural colonies have been established at Touay for the treatment of persons predisposed to tuberculosis and especially of soldiers who have been temporarily discharged from the army. These colonies differ from a sanatorium in so far as the patients perform agricultural work under the supervision of physicians. Besides cultivating gardens, raising fruit, flowers, etc., the patients receive thorough instruction concerning the dangers of alcoholism and the prevention of tuberculosis.

Floating Sanatoriums (Schwimmende Sanatorien). Deutsche Krankenpf.-Zeitung, Berlin, 1915, XVIII, No. 18.

On account of the great number of soldiers afflicted with mental and nervous disorders due to the war the Russian cities have asked the Psychiatric Commission in Petrograd to devise ways and means for the treatment of these patients. One plan proposes to provide for a number of ships, which should carry these patients for weeks up and down the rivers and along the coasts of Russia. Such an

open-air treatment is considered the best means for a cure of these disorders. A number of ships have already been chartered, and the cities have raised 80,000 rubles for this purpose.

The Manufacture of Aseptic Hospital Furniture. J. Lionel Stretton. British Med. Jour., 1915, No. 2861.

Dr. Stretton urges more cooperation between the surgeons and manufacturers to arrive at a "perfect article" in hospital furniture. In comparing the enamel burnt on metal and the enamel on wood he much prefers the latter, and adds, "I have never seen a piece of enameled metal furniture which has not chipped in a few weeks, and most of it is bespeckled before a year has passed. The enamel on wooden furniture never chips." The doctor prefers wood because "wooden furniture is far lighter for moving about; it is strong enough for its purpose, and the cost is less than half that of the metal."

Organization of Specialty Services in the Territorial Hospitals (Organisation de services de spécialités dans les hôpitaux du territoire). Caducée, Paris, 1915, XVI, No. 2.

The medical department of the French army has organized special services in neurology, ophthalmology, otorhino-laryngology, orthopedics, urology and psychiatry for each army corps. A physician-in-chief is at the head of each of these services; it is his duty to visit all the hospitals in his territory and to select all the patients which he considers need treatment in his specialty. These patients are treated either at the hospital where they are or are transferred to a centrally located hospital, where a division of the respective specialty is conducted.

Prevention of Typhus Infection in Hospitals (Zur Verhütung der Flecktyphus-Ansteckung in den Krankenhäusern). Dr. Pecirka. Zeitschr. f. Krankenanst., Leipzig, 1915, XI, No. 35.

Typhus fever is transmitted by the body louse (*Pediculus vestimenti*). The parasite, after biting its host, pours the contents of its mouth glands into the wound in order to irritate the tissues and thus produce a more abundant flow of blood to the parts. Dr. Pecirka found that small doses of quinine (2 grammes) taken daily produce such a change in the blood that its taste is not palatable to the insect. The parasite is thus prevented from pouring the contents of its glands, which contain the germs of the disease, into the wound. This new method of prevention was tried in the prisoners' camp at Mauthausen and proved eminently successful.

The Forest Sanatoriums and Forest School at Elberfeld (Die Walderholungsstätten und Waldschule zu Elberfeld). By E. Sprungmann. Tuberculosis, Leipzig, 1915, XIV, No. 6.

In 1905 the city of Elberfeld, the great industrial center of Germany, established a sanatorium for tubercular patients in the extensive public pine woods near the city. A large pavilion was erected in these pine woods. In summer time the patients gather at 8 o'clock in the morning at the Steinbeck railway station, whence they are carried by rail to the sanatorium, where they are at once given breakfast. A second breakfast is served at half past ten and a substantial dinner at half past twelve o'clock. At four o'clock they receive lunch, and at 7 P. M., before they return to the city, another substantial meal is served. This sanatorium was established only for men, but it proved such a great success that in 1906 another similar sanatorium was established for female patients.

In 1907 a school for weakly children was established in the same pine forest. The children stay all summer at

this establishment. They receive their instruction in the open air, and during the night sleep in two large open-air halls. During the last eight years no less than 1,430 were received at this open-air school.

The Archduke Rainer Military Hospital (Das k. k. Erzherzog Rainer-Militärhospital). Militärarzt, Wien, 1915, XLIX, No. 23.

A large military hospital, whose erection was begun two years ago, has just been completed. This new hospital is situated in the suburbs of Vienna and comprises an area of 44,000 square meters, 7,000 square meters of which are taken up by the buildings. From the one-story entrance building at the southern end of the grounds a wide street leads through a beautiful park to the main front of the hospital. This front forms a convex arch and is 802 meters long. It contains three large five-story pavilions, which are connected by two large three-story buildings, containing spacious open halls for open-air treatment. The central pavilion contains the administrative offices, a lecture hall, a pharmacy and rooms for physicians and nurses. The western pavilion receives patients with internal diseases, the eastern is intended for external diseases (skin, sexual, eye, ear, and nose diseases). In the large park behind the main row of buildings is the great four-story surgical pavilion. Two corridors, which are open in summer, but which can be closed and heated in winter, connect the surgical pavilion with the administrative building. The northern park contains also a chapel, an isolation pavilion and other minor buildings. At present the hospital has room for 500 soldiers and 25 officers.

Clinical Teaching. M. Schulman, M. D. N. Y. Med. Jour., 1915, CII, No. 20.

The Board of Managers of the Vanderbilt Clinic, presided over by the Dean of the College of Physicians and Surgeons of Columbia University, gave Dr. Schulman the permission in October, 1911, to organize a district service in connection with the clinic. This was organized to offer medical care in the patient's home and thus give the fourth-year classes material for study to supplement instruction given in the hospital wards, clinic rooms and amphitheatres. Students are reported to have taken to the work with enthusiasm during the past three years. Patients that would otherwise have had no care or at best sporadic and unsatisfactory treatment have received careful and prolonged medical attention. Briefly the work has proven not only interesting and instructive, but extremely useful to the district.

The Admission of Indigent Patients to the University Hospital, Ann Arbor, Mich. Reuben Pederson, M. D. Jour. Mich. State Med. Soc., 1915, XIV, No. 11.

Michigan was probably the first state in the union to place on its statute books "An act to provide for the medical and surgical treatment of children who are afflicted with a curable malady or deformity and whose parents are unable to provide proper treatment, providing for expense thereof and prescribing the jurisdiction of the probate court in such cases." This bill was passed in 1913 and has served as a model for other states. That the act passed this year is broader in scope is evident from the title of the bill: "An act to provide free hospital service and medical and surgical treatment for persons afflicted with a malady or deformity which can be benefited by hospital treatment, who are unable to pay for such care and treatment, and for pregnant women unable to pay for such care and treatment, and for children of such pregnant women born during the period of hospital care, and

providing for the expense thereof and prescribing the jurisdiction of the probate court in said cases." Dr. Pederson, of the University Hospital, Ann Arbor, commenting on what the old law has done for afflicted children of Michigan, states that seven hundred have been referred to the hospital during the last two years. Referring to the new act, the doctor is confident that this law will be productive of equally good results and assures the probate judges of Michigan that the hospital authorities stand ready to cooperate at all times.

Legislation for the Insane in Massachusetts, with Particular Reference to the Voluntary Admission and Temporary Care Laws. Frankwood E. Williams, M. D. Boston Med. and Surg. Jour., CLXXIII, No. 20.

An exhaustive survey of Legislation for the Insane in Massachusetts from Colonial days down to the present time convinces Dr. Williams that the "voluntary and temporary care laws" today are valuable because:

1. They tend to express in legal form the modern conceptions of mental disease, and without endangering the personal liberty of any individual;
2. They at the same time emphasize the patient's cause as a patient;
3. They make it possible to provide early treatment, which is the most hopeful treatment;
4. They afford protection to the patient both from himself and from unprincipled members of the community quick to take advantage of his illness;
5. They afford protection to the family and community against the acts of the patient;
6. They obviate in a large number of cases the delays, legal exactions, semi-publicity and stigma of having been declared insane;
7. They remove the hospitals from the isolation they have suffered in the community and make it possible for them to take their place as hospitals in fact as well as in name, a more integral part of the social fabric;
8. They make possible a wider cooperation between the hospitals and the lay and medical public, which will yield to the commonwealth which supports them a greater usefulness;
9. And, finally, by means of a wider understanding of the more fundamental facts in regard to mental disease on the part of the physicians, cooperating with the hospitals, through the more frequent use of these laws, it may be possible to prevent certain forms of mental disease.

A word to trustees: how would you like to be the general manager of a complex and exacting factory or manufacturing plant, for the successful operation of which you were held responsible and yet in which the heads of departments reported over your head to a trustee, or to the trustees as a body, and in which the trustees felt free to give orders direct to your subordinates? Do you think it would be fair for the trustees to hold you responsible for results under such circumstances? That is exactly the situation in the hospital of which you are a trustee. You hold your superintendent responsible for results, for discipline, for smooth running, and yet if you do not actually force on him or her uncongenial and antagonistic subordinates, you interfere with the discipline by showing in your conduct that you do not trust your superintendent, and give your own orders.

You know very well that is not the way to get results, and though you continually preach "business methods" in the hospital, you do everything in your power to make it impossible for your factory manager to enforce business methods.

Sufficient funds have been raised in a recent campaign conducted by the Grand View Hospital, Sellersville, Pa., to insure the erection of a larger and more modern plant for that institution in the near future.

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DEPARTMENT OF NURSING

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The Correlation of Hospital Diets¹

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It is not within the province of this paper to discuss in detail the different avenues which lead up and through the daily regime for maintaining a satisfied, suitably fed family, other than what may be necessary to demonstrate the relation of part to part or parts to the whole. To obtain the maximum results the dietary department must cooperate with every other department at the points of least resistance. It is assumed that all large hospitals and a majority of smaller ones have an organized, systematized dietary department, in which should enter modern methods.

There must be a clear comprehension of the various and varied diets of any hospital. Hospitals differ greatly in character. They may be charitable or pay, or both. They may be general or specialized, chronic or acute, infants or children, or all-inclusive. It matters not what, but they must be so grouped for a working basis that the results will meet the demands. Whether in wards, buildings or special institutions, the patients are usually apportioned by age, as infants, children or adults, and subdivided into sex, and into medical and surgical.

INFANTS

Hospitals exclusively for infants are rare. Infants' wards are usually adjuncts to the children's hospital or are part of the maternity service. The feeding of infants, whether they be medical or surgical cases, resolves into the percentage formula as prescribed by the physician, easily calculated and prepared. Looking back ten years, it seems almost impossible that the average intern felt the formula a bugbear, which any grammar school girl today could readily work out if put in the form of an equation.

This feeding formula must take into consideration the age and condition of the infant, the energy quotient, with the nature and severity of the disease. Those who have the care of infants must keep abreast of the times and be able to apply the results of the research which has been done during the past few years along the lines of "deficiency diseases." The emphasis recently placed upon the discovery of vitamins has thrown new light upon certain phases of malnutrition, as has the present activity over the varying split-protein products and the effects of the different cereals usually employed as diluents, with their relation to the intestinal flora and as methods of control for intestinal infection. The lack of more definite data concerning salts metabolism and the part they play in end-products has been a handicap, certainly in the matter of bone and joint involvement; but the coming year is ex-

¹Read before the Seventeenth Annual Meeting of the American Hospital Association, San Francisco, June 21, 1915.

pected to yield fruit worthy of the great laboratories at work upon these subjects.

There should be in every institution for infants considerable space set apart for the care and preparation of the feedings—one room, preferably two, with walls and floors either tiled or enameled, with refrigeration and sterilization facilities accessible, as well as equipment for the preparation of the various starch products as ordered. The need of a pure milk supply is unquestioned. The securing of a supply of standard percentage cream is always difficult, though it be guaranteed. A small electrical separator is the ideal method, and in addition there should be set up one of the new homogenizing machines which produces such an exceedingly fine emulsion; the fat is more easily absorbed. The whole should be under the surveillance of one who has the knowledge and will faithfully and intelligently carry out orders. Thus the entire feeding of this class of patients resolves itself into a problem which, though simple, costs money, but not so much for raw food material as for the space and necessary equipment plus the salary of such a responsible person.

CHILDREN

In children's hospitals, where the ages of the patients range from two to twelve years, there should be three distinct house diets, or general diets, for all those who need not be upon what are termed "special metabolism diets." These three general diets must be carefully planned, and calculated with direct reference to group ages to furnish the balanced ration for the growing child. Some of the food and a few dishes may be suitable for all, which would greatly facilitate the kitchen service. Just here is the stumbling block: more thought must be given to the patients than to the cooks, and I grant you that it is easier to get patients than cooks.

I said these group diets must be carefully planned—and I reassert it; there is nothing more dreary than the monotonous daily diet of the average children's ward, consisting of mashed potato, boiled rice, ground meat, and the ubiquitous pudding. In all earnestness I ask, why are sick children still fed upon rice, when hulled rice is today prohibited by law in one nation and gradually being dropped by another? Of necessity the character of the food is simple and easy of preparation, but its monotony often causes it to lose that important factor of digestion, psychic effect. If more time, more thought and more energy were given to the preparation of the same raw material into a greater variety of pleasing dishes, changing their form and color, the results would be infinitely greater. Food on paper may read calories and all of the food principles, but unless food be eaten and assimilated there is a double waste—the waste in material and the waste in energy to eliminate. There has not been enough consideration given in the past to the matter of pleasing children.

Many of our hospitals feel that serving frozen dishes is the acme of extravagance. Probably it would be if they were all made of cream, but it is possible to produce very delicious ices without any cream. You may call them frozen puddings, frappés, sherbets or what you will, but nothing is more refreshing to a fever-tossed patient than one mouthful of some frozen dessert.

Where have the sponge cakes gone—the little ones that you and I used to love? Do you think the fairies have carried them off, as I heard a nurse tell a wee tot one afternoon? They are harmless. Try to be fairies at home and bring back cakes and cookies to all the youngsters in your wards who may eat.

There should be a diet laboratory connected with every

children's hospital where special feeding and some general metabolism results may be obtained. Children have nephritis, diabetes, typhoid fever, tuberculosis and many alimentary disturbances just as do adults. Satisfactory results can be secured only from definite premises. It may be necessary to know the tolerance in one case and to establish an equilibrium in another. Metabolism work ought not to be confined to research laboratories, but should be a part of the treatment, and the same methods should be applied. The dietitians in children's hospitals have certainly a broad field for improvement before them. It is possible and necessary that they should meet this requirement in exactly the same manner as in dealing with older patients and make all the diets applicable to the individual case concerned.

ADULTS

In considering the diets for adult patients there are many more sides to the problem and greater difficulties. Very ill patients are easier cared for than those who have passed the crisis and entered upon convalescence. Nationality, environment and previous habits are distinct factors. Age, sex and temperament present continually daily trials for those trying to please when totaling the whole to suit the nature of the disease and its severity.

There have been many radical changes during the past ten years. One diet has passed out, giving place to another and it in turn has been replaced. Diet lists and grouped diets are being eliminated from ward bulletins. The old broth-beef juice and beef tea regimen has been abolished. The hospital which formerly issued gallons, serves pints, and that is chicken instead of beef. With the clearer understanding of the food value of milk, the daily per capita quantity has fallen fifty per cent, thereby meeting the high cost of clean milk by the smaller quantity. The usual grouping of patients has not yet been abandoned, but we have hopes. There continue to be house diets, soft solids, liquids and specials, yet looking at them closely, we find they stand for somewhat different things today. Rarely do the diets mean definite inclusive amounts, as formerly, but rather the character of the food to be served.

In developing a dietary system for the new Peter Bent Brigham Hospital, the effort was to steer as far from the old known ruts as possible. There are no traditions, and the policy is subject to change. The general or house diet is more liberal than is usual; it eliminates entirely the work and strain of the average diet kitchen, where extras and tidbits for the favored few are prepared, to the dissatisfaction of the neglected majority. Steaks, chops, poultry at reasonable intervals for all, has resulted in better feeding and greater satisfaction, and has not increased the per capita cost. Veal, fresh pork or corned beef never appear on the menus for patients.

The soft solid diet continues to be a diet of care, the amounts of each article as the physician orders, but broader in variety and more liberal in quantity. The special diets are so changed in character and method that they have been termed metabolism diets to differentiate them from those in other hospitals. Whenever a hospital has been attached to a research laboratory, special, weighed and calculated diets have been necessary for the experiments. At the Peter Bent Brigham Hospital the work was begun the other way around. Every patient with doubtful metabolism becomes at once, not the experiment, but a case for treatment by the results of the experiments. At the time of writing 15 per cent of the total patients, or 32 per cent of medical patients, are fed upon the basis of intake and output equilibrium of each partic-

ular patient, with reference to the character of the disease, the more or less severity, plus complications. Food prescriptions are written with the same formality as those for the pharmacist, giving date, ward, name, diagnosis, number of feedings, calories, with the amounts of protein, fats, carbohydrates and salts in grams, total fluids when necessary. These prescriptions are sent to the dietitian, who sees that they are accurately calculated, made up into menus and promptly delivered.

PETER BENT BRIGHAM HOSPITAL

Ward..... Date.....
Name.....
Diagnosis.....
Feedings.....
Calories.....

R

Proteingrams
Fatsgrams
Carbohydratesgrams
Saltsgrams
Total fluidsc. c.

Signed.....

Physician.

This entails an enormous amount of reliable work and presupposes a broad knowledge of the composition of all food materials, their suitability, digestibility and end-products. This means additional work for students in our medical schools, much more than the desultory course in dietetics now given. Above all, there must come from the medical profession the demand for better trained dietitians to carry on this advanced work. There must be extra training for cooperation. The dietitian must have the ability to grasp a diagnosis, then intelligently follow laboratory methods and findings.

The special metabolism diets are prepared in a diet laboratory under the care of an assistant and two nurses who are on their six weeks' dietetic course. The food, according to prescription, calculation and menus, is cooked and placed in small selected containers, packed in heated tin boxes or in ice as the case may be, and delivered by a messenger, passing on directly to the nurse in charge, who as carefully unpacks and serves. Any left-over is weighed and calculated by the junior intern on duty in the ward laboratory. The whole is charted. The menus are sent to the laboratory by nine o'clock the following morning.

SAMPLE DIETS

Test Nephritic

HIGH PROTEIN DIET

Food	Amount	Protein (grams)	Fat (grams)	Carbo-hydrate (grams)	Calories
Apple	50 grams	.20	.25	7.10	31.45
Dates	10 grams	.21	.28	7.84	34.72
Milk	400 c. c.	13.20	16.00	20.00	276.80
Cream	40 c. c.	.88	16.00	1.20	152.32
Butter	30 grams	.30	25.50	.....	230.70
5 eggs	250 grams	33.50	26.25	.....	370.25
Steak (tenderloin)	200 grams	47.00	40.80	.....	555.20
Chicken	100 grams	21.90	7.40	.....	154.20
Cheese (American)	50 grams	14.40	17.95	.15	219.75
Farina	150 grams	2.475	.315	17.175	81.435
Potato	100 grams	2.50	.10	20.90	94.50
Spinach	100 grams	2.10	4.10	2.60	55.70
Tomato juice	100 c. c.	.....	.....	.....	.....
Macaroni	100 grams	3.00	1.50	15.80	88.70
Bread	70 grams	6.44	.39	15.93	78.27
Cocoa	5 grams	1.08	1.445	1.885	24.865
Cornstarch	5 grams	.....	.....	4.50	18.00
Sugar	35 grams	.....	.....	35.00	140.00
Sherry	20 c. c.	.....	.....	.....	.....
Total		149.185	158.80	171.32	2711.22

MENU

Arranged from above calculation

Breakfast. 7:30 A. M.

Apple	50 grams
Farina	150 grams
*c. Dates	10 grams
2 eggs in ramequin	100 grams
Toast	20 grams
c. Butter	5 grams
Coffee	150 c. c.
Milk	25 c. c.
Cream	10 c. c.
Sugar	10 grams

10 A. M.

Egg Nog—	
1 egg	50 grams
Sugar	5 grams
Milk	100 c. c.
Sherry	20 c. c.

Dinner. 12:00 Noon

Tomato Bisque—	
Milk	100 c. c.
Tomato juice	100 c. c.
Broiled steak	200 grams
Stuffed potato	100 grams
c. Butter	5 grams
Bread	20 grams
c. Butter	5 grams
Cocoa Cornstarch Pudding—	
Milk	100 c. c.
1 egg	50 grams
Sugar	10 grams
Cornstarch	5 grams
Cocoa	5 grams
Tea	150 c. c.
Cream	20 c. c.
Sugar	5 grams

3:00 P. M.

Grapejuice	90 c. c.
Water	90 c. c.

Crushed Ice

Supper. 5:00 P. M.

Sliced chicken	100 grams
Spinach	100 grams
c. 1 hard cooked egg	50 grams
Bread	20 grams
c. Butter	5 grams
Scalloped macaroni	100 grams
c. Bread crumbs	10 grams
Cheese (American)	50 grams
Milk	25 c. c.
Butter	10 grams
Tea	150 c. c.
Cream	10 c. c.
Sugar	5 grams

*10 g. dates or prunes may be used to change the flavor and yield approximately 33. calories, 7.85 carbohydrate.

DIABETIC DIET

Food	Amount	Protein (grams)	Fat (grams)	Carbo-hydrate (grams)	Calories
Grapefruit	100 grams	.79	.20	10.09	45.32
Oatmeal	100 grams	2.80	.50	11.50	61.70
Vegetable (5%)	200 grams	2.80	2.50	6.83166	61.02664
Bread	30 grams	2.79	.36	15.81	77.64
Cheese	20 grams	5.18	6.74	.48	83.30
Meat	250 grams	59.90	44.65	.....	641.45
3 eggs	150 grams	20.10	15.75	.....	222.15
Butter	50 grams	.50	42.50	.....	384.50
Cream (40%)	160 grams	3.52	64.00	4.80	609.28
Total		98.38	177.20	49.51166	2186.36664

MENU

Arranged from above calculation

Breakfast

Grapefruit	100 grams
Oatmeal	100 grams
Lamb chops	100 grams
Coffee. c. Cream (20 c. c.)	150 c. c.

Dinner

Broth	200 c. c.
Roast beef	100 grams
Spinach	100 grams
Cheese omelet—2 eggs, cheese	20 grams
Tea. c. Cream (20 c. c.)	150 c. c.

Supper

*Club sandwich

Custard—1 egg, cream

Cocoa c. whipped cream

*Patients who are accustomed to having club or hotel service find a club sandwich the most pleasing for supper. It, of course, calls for a thin slice of toast (and can only be given when sufficient number of carbohydrate grams are ordered to justify the bread), lettuce, a couple of sliced tomatoes, of cucumber, of bacon, hard cooked egg, chicken and mayonnaise dressing, topped with chopped parsley or mint or capers or sour pickles.

PHOSPHATURIA

Food	Amount	CaO (grams)	Protein (grams)	Fat (grams)	Carbo-hydrate (grams)	Cal-ories
Grapefruit	50 grams	.015	.395	.10	5.045	22.66
Bacon	50 grams	.0031	5.250	32.40	.....	312.60
Oatmeal	100 grams	.130	2.800	.50	11.500	61.70
Chicken	50 grams	.0075	10.950	3.70	.....	77.10
Roast beef	75 grams	.00825	16.725	21.45	.....	259.95
Potato	50 grams	.008	1.250	.05	10.600	47.25
Dandelion greens	100 grams	.....	2.400	1.00	4.850	61.00
Pineapple	50 grams	.010	.200	.15	24.400	21.55
Rice	100 grams	.012	2.800	.10	10.500	109.70
Squash	100 grams	.020	.900	.50	47.430	50.10
Bread	90 grams	.027	8.370	1.08	.....	232.92
Butter	50 grams	.010	.500	42.50	.....	384.50
Cream	90 c. c.	.126	1.980	36.00	2.700	342.72
Sugar	40 grams	.....	.....	.....	.....	.....
Jelly	.....	.....	.....	.....	.....	.....
Total		.37685	54.52	139.53	167.475	2143.75

MENU	
Arranged from above calculation	
Breakfast	
Grapefruit	50 grams
Bacon	50 grams
Oatmeal	100 grams
Toast	30 grams
Coffee. Cream. Sugar.	
Dinner	
Roast beef	75 grams
Browned potato	50 grams
Dandelion greens	100 grams
Bread. Butter	30 grams
Pineapple. c. Whipped cream	50 grams
Tea. Cream. Sugar.	
Supper	
Rice c. jelly	100 grams
Baked squash	100 grams
Chicken	50 grams
*iii c. Cabbage.	
Bread. Butter	30 grams
Tea. Cream. Sugar.	

*iii c. = thrice-cooked vegetables.

SALT POOR DIET								
	Food	Amount	Protein (gr's)	Fat (gr's)	Carbo- hydrate (gr's)	Cl. (gr's)	Salts (gr's)	Calo- ries
Milk	400 c. c.	13.2	16.0	20.0	.48	2.8	276.8
Butter	60 grams	.6	51.0	....	....	....	461.4
3 eggs	150 grams	20.1	15.7	....	.15	1.2	221.7
Sugar	35 grams	....	....	35.0	....	....	140.0
Bread	120 grams	11.1	1.4	63.2	....	1.2	309.8
Cream	40 c. c.	.9	16.0	1.2	.04	.2	152.4
Orange	50 grams	.4	.1	5.8	.005	.25	25.7
Potato	100 grams	2.5	.1	20.9	.03	1.0	94.5
Oatmeal	200 grams	5.6	1.0	23.0	.07	1.4	123.4
Cauliflower	100 grams	1.8	.5	4.7	.05	.7	30.5
Tomatoes	100 grams	1.2	.2	4.0	.03	.6	22.6
Halibut	100 grams	18.6	5.2	....	....	1.00	121.2
Chicken	50 grams	10.95	3.7	....	.03	.55	77.1
Peaches (canned)	100 grams	.7	.1	10.8	.01	.3	46.9
Total.....			87.65	111.0	188.6	.895	11.2	2104.0

MENU	
*Arranged from above calculation	
Breakfast. 7:30 A. M.	
Orange	50 grams
Oatmeal	200 grams
2 eggs	100 grams
Toast	40 grams
Coffee	150 c. c.
Cream	10 c. c.
Sugar	10 grams
Milk	25 c. c.
10:00 A. M.	
Milk	150 c. c.
Dinner. 12:00 Noon	
Milk soup (celery flavor)	100 c. c.
Halibut	100 grams
Potato (stuffed)	100 grams
Scalloped tomatoes	100 grams
Bread	40 grams
Butter. Frozen custard.	
Tea	150 c. c.
Cream	20 c. c.
Sugar	5 grams
1 egg	
Supper. 5:00 P. M.	
Sliced chicken	50 grams
Cauliflower	100 grams
Bread	40 grams
Butter	
Peaches	100 grams
Tea	150 c. c.
Cream	10 c. c.
Sugar	10 grams
Milk	25 c. c.

*All food prepared without NaCl.

In the surgical wards special attention has been given to all thyroid cases and acute glycosuria. Excellent results have also been secured after gastrostomy operations. Patients have gained in weight, which is unusual, and have been able to leave the hospital in fairly good condition—the average calories of such fluid feeding being nearly 3,000.

The special dieting has been particularly concerned with what are known as the true dietetic diseases, such as nephritis, diabetes, phosphaturia, etc., and several cases of oriental disease. Some research work has been done in chronic nephritis by Dr. Frothingham and Dr. Smillie, the results of which were published in the Archives of Internal Medicine, February, 1915. There were five tests for

chronic nephritis used: 1. The finding of albumin and casts; 2. The rise in blood pressure; 3. The phenolsulphonephthalein test; 4. The total blood nitrogen; 5. The ability of the kidney to secrete added salt and urea on a fixed diet. This fifth test called for several carefully calculated diets which resulted in the standardizing of three nephritic diets, with varying amounts of protein, which are used after diagnosis as indicated. Dr. Christian, for other findings, planned out what is known as a renal test diet. This is after the order of the diet planned by Dr. Mosen-thal, of Johns Hopkins Hospital, except where Dr. Mosen-thal had three feedings, Dr. Christian's calls for a feeding every two hours, each feeding being of different food material and in different quantities. The feces are noted and the urine collected every two hours. This diet required a preliminary nitrogenous fixation of three to five days. The results of this are to be published later.

The diabetic patients are treated after the most recent methods. The starvation method plus alcohol as recommended by Dr. Allen has resulted in getting our patients sugar-free in 1 to 2 days instead of the uncertain time which usually varied from 5 to 30 days; this is a distinct financial benefit to the hospital as well as to the patient. When the fasting patient has been sugar-free from 24 to 48 hours the next step is to begin feeding very cautiously. Any trace of sugar is a signal for fasting a day with or without alcohol. Invariably the first thing given after a fast is carbohydrate. The only food may consist of 200 grams of vegetables of the 5-6 per cent carbohydrate class. This quantity is gradually increased, the dietitian watching carefully for any trace of sugar; the purpose being to find out the carbohydrate tolerance and to keep the patient free from acidosis. After this carbohydrate period it becomes necessary to secure the protein tolerance. Fat is somewhat less urgently needed except in very weak or emaciated patients, and it can be added gradually, as "an element of bulk is frequently needed during the starvation days to give a comfortable feeling of fullness and to prevent constipation." Dr. Allen has inaugurated a series of what is termed thrice-cooked green vegetables. Nearly all of the starch is thus got rid of. The simplest method of thrice boiling the vegetables is to place them in squares of cheese cloth and move them from one container to the other. The temperature of the water is never lowered. Salt and vinegar are added to make them palatable when serving. They add enormously to the bulk of the diet and can be given after the starvation days are over, being food carriers of fat when the calories need to be increased and fat allowed.

A new method for home continuation work was started in March, 1914, when it became necessary to care for diabetic patients on leaving the hospital. They were advised to return to the outdoor department weekly and upon request for some idea of what they should eat I suggested to Dr. Christian, our physician-in-chief, that if a course of simple cooking lessons within the means of the ordinary household were given to these patients it would add greatly to the benefits of home treatment. We asked the cooperation of a technical college, but there did not seem to be anyone available, so I extracted from my busy hours time to attend to it personally. Green vegetables, though expensive, were treated in a most careful manner, so as to give the patients an idea of at least ten dishes to be made of the same food materials, for variety. The cost and economy in left-overs were emphasized and it proved most satisfactory. Though we were granted permission by the committee to fit up a small kitchen in the outdoor department for this purpose, we thought it advisable to utilize one of the general kitchens to test out weak points. These

classes were attended by both men and women. Some men who were out of work and were taking care of themselves attended the classes; also women who had to cook for their husbands, as well as women who had the disease. This year, owing to my increased duties, it was almost impossible for me to carry on the work personally, but we have secured through the social service department a very competent person to take charge of it, and have added to the lessons the matter of using a simple test for sugar in the urine which they can do at home, using Benedict's solution. Whether this will prove as broad in its value as the simple lessons remains to be seen, but it has been estimated that \$2,000,000 in fees have been lost to the physicians of the country. Testing urine, to them, always meant \$3.00 each time.

In typhoid fever the high calorie diet of Dr. Coleman seems to be generally used. That is calculating about 40 calories per kilogram of body weight. The mixed diet readily furnishes an amount of energy, but it is not sufficient to establish the nitrogenous equilibrium. The best results are obtained by making the total calories from 4,000 to 5,000 per 100 kilograms. The outside requirement, however, must vary with the individual case and in different stages of the disease. The relative proportion of protein, fat and carbohydrate is largely theoretical, but the best results are obtained by sparing the body protein. To reach this maximum the food is selected with care in regard to the waste products and to prevent excess of any one of the food principles.

We have experimented with the fluid preparations in the effort to make them more palatable, and to establish a standard. There are numbers of dishes which can be substituted to break the awful monotony heretofore prevalent. Considerable of the material which enters into the calculations is frozen and served as mid-meals. Our patients leave the hospital after a short convalescence in very good condition, having lost little weight.

The last of my message, the question, what can be done to bring the whole subject of hospital diets to a higher standard and to meet the new requirements? is the most difficult of all. It is comparatively easy to look over the field and see what is being done, easier still to tell of that with which one is vitally interested and doing, but quite another thing to outline directions for those who have not been required to meet the practical side of such feeding. Dr. Mann certainly saw the question in its greatest significance, with clear vision. The new requirements and different standards are not to be confined to the larger hospitals, but are here for all, and will eventually reach every small hospital throughout the country. Why? Graduate students and interns from the hospitals feeding along fixed and definite methods will go out as residents and visiting doctors to the small hospitals; they will meet the same diseases and similar conditions, will refuse to work blindly, and will demand something not only from the hospital, but from the nurses in private practice, who must be equal to such emergencies.

Technical schools that prepare dietitians are awake to the situation as evidenced in a questionnaire sent out last autumn. Dietitians already employed in and about Boston realize their shortcomings, and have started a round table for a study of this new work. The outcome of the first meeting was a request to the Harvard Medical School for admission to work. Women will be admitted to certain courses of lectures and laboratories at the summer school, and a series of dietetic conferences is being arranged for next winter, open to both men and women.

If the doctors call for it and the dietitians are ready, it should be a very simple matter to equip a diet laboratory

with the utensils (which may be the simplest possible)—diet scales, selected containers, etc., each hospital meeting the problems of delivery and serving in accordance with its general routine.

One of the questions which has been received for the dietary question box is apropos, and may as well be considered here, instead of in the separate session. "How can a small hospital, unable to afford a dietitian, be able to take care of special dieting, as it is often asked to do?" My answer is, be willing to pay \$50 to \$100 to an expert dietitian, just as you have to pay an auditor or engineer; let this dietitian work out for you a series of diets with possible varying amounts of fats, carbohydrates, protein and salts to suit the disease. From these calculations work out a large number of menus and place them in a card catalog. Then send one of your brightest nurses for a dozen lessons in the preparation of the food so selected, and learn by doing it in your own hospital.

Briefly summarizing from the foregoing and general impressions, I find: 1. The whole question of diets is unsettled, or rather in a state of evolution. The older hospitals hug their traditions; the later and newer ones are viewed with suspicion, as not fully tried and likely to be found wanting. 2. That too much stress has been placed upon the difficulties which seemingly stand in the way, such as expense of equipment and material, and the difficulty of finding the proper person to launch such innovations, and the uncertainty of the medical men themselves. 3. That the cooperation of all departments—the superintendent, the entire nursing staff, physicians and their assistants—is essential for the smooth running of such detailed work. 4. That the keynote of ultimate success in the matter of metabolism diets is a wider knowledge of the benefits to be derived.

A Simple and Practical Method of Catheterization

BY IDA M. GAILEY, R. N.,

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Those who have taught pupil nurses to catheterize, and who have watched their work closely, will, I believe, agree that the points in the procedure most difficult for the average pupil to grasp are, i. e.: (1) how to keep their hands from conveying infectious material into the meatus; (2) to be able to find, easily, the meatus urinarius, especially in puerperal patients, where the labia are swollen. To remedy this I have adopted the technic outlined in the succeeding paragraphs.

Equipment.

One sterile tray containing:

- (1) One sterile pan, containing two perfect glass catheters, each having five inches of rubber tubing attached to its distal end.
- (2) One sterile pitcher containing one quart of sterile antiseptic solution of proper strength for flushing.
- (3) One sterile wide-mouth glass bottle, capacity at least one quart, of special design for this purpose only.
- (4) One package of three sterile towels.
- (5) One pair of good sterile gloves.

Additional supplies:

Douche pan.
Draping sheet.
Screen for bedside.

Procedure.

- (1) The pupil takes tray and other supplies to bedside and places screen around bed.
- (2) She washes her hands carefully and dries them on clean towel.

(3) Puts patient on douche pan, drapes with clean sheet, folding bed covers to foot of bed.

(4) Places the tray at patient's feet.

(5) Opens sterile packages—puts on sterile gloves.

(6) Places one sterile towel over pubic region and one over thigh next the pupil.

(7) Picks up handle of pitcher with extra sterile towel with right hand. With thumb and forefinger of left hand separates labiae at the uppermost point, and holds them well separated.

(8) The solution is poured from pitcher in right hand with some force, so that the flow strikes against the meatus, thereby opening it, and at the same time washing infectious material downward from it, thus cleansing the orifice.

(9) Still holding the labiae apart—not letting them fall together for one instant—the pupil sets the pitcher on the tray, picks up the rubber catheter at the rubber end, and kinks the rubber as she inserts the catheter into the meatus.

(10) Then releasing the thumb and forefinger of left hand, with them she holds rubber end of catheter closed until, with right hand, she places the bottle in douche pan, directing rubber end into it, allowing the urine to flow directly into a sterile container, thus providing a sterile specimen if same is wanted for examination.

The rest of the technic is the same as is usually taught: pressure over the supra-pubic region, and reaching recesses of the bladder by gentle turning of the catheter to facilitate the flow of urine.

The catheter must always be inspected before insertion for cracks or imperfections, and for that reason or in case of accident I instruct pupils to sterilize two catheters for each catheterization.

After the urine ceases to flow the pupil flushes the labiae, removes patient from the douche pan, dries the buttocks and makes the bed toilet.

The gloves must be in good condition, and in putting them on the nurse must observe a strict rule, as follows: the glove must be put on without the bare hand or fingers coming in contact with the outside of the glove. This method is taught, I believe, in surgical technic in all schools for nurses, therefore I shall not go into detail in discussion of the procedure.

The Death of Miss Margaret Hamilton

A few weeks ago there came from the War Office in London the sad news of the death of Miss Margaret Hamilton—the first death of an American nurse on active service at the western front with the British expeditionary force. Miss Hamilton was one of the seventy-five nurses who went over to France last June with the Chicago Unit. This unit, which included thirty-two doctors, sailed from New York June 12, and after a short stay in London was sent over into France, where it took over a line of communication hospital of 1,000 beds, about forty miles back of the firing line.

From the very beginning of the work of this unit came stories of the efficiency and tenderness of the American nurse. Her quiet, skilful and sympathetic care of the wounded "Tommies" was such that, as one of the men expressed it, it made them even lose their patriotism so much that they never wanted to go back to the front after once having been in hospital.

In the face of all sorts of discomforts incident to camp life, the army rations, and the canvas hutches, no one ever

heard a word of complaint from a single one of these nurses. When there were "drives" up at the front and the work ran heavy at the hospital these women would do a forty-eight-hour stretch with practically no sleep, without asking for relief; and when the work ran light they were wise enough to enjoy long walks in the beautiful country around about the camp, so that really at the end of the summer they were all in first-class physical condition.

It was a great shock, then, when the news of Miss Hamilton's death came so suddenly. No finer tribute could have been given a British officer than was paid to this young American girl, who had gone abroad urged by the desire to acquire greater proficiency in her profession for the benefit of others on her return and for the sake of humanity in this great war.



Fig. 1. Miss Margaret Hamilton.

By permission of her sister the following tribute, written by Major George P. Gill, of the Chicago Unit, is printed here, which tells the story of the military funeral:

"On October 22 a dark cloud of sorrow and sadness enveloped our camp. One of our Nursing Sisters, Miss Margaret Hamilton, of East St. Louis, most capable and conscientious and universally loved and respected, both by her friends and associates in the States and by the members of the Chicago Unit, contracted a meningitis, while on duty, and died within thirty-six hours.

"It was a great shock to us all, sudden and unexpected, and our hearts and minds at once turned instinctively to those who held her dear, back home, in the vague hope that something could be done to relieve the shock of the inevitable grief and sadness, especially to the mother. Aided by the British representatives with whom we are associated, we tried to make arrangements to send her body back to America, but under existing conditions (the whole country is under military rule) it was impossible, such a procedure being absolutely forbidden.

"The British authorities were very considerate and did all that could be done at such a time and under such circumstances. Her death was mentioned in Routine Orders as occurring "On Duty, On Active Service;" she was given a military funeral, with full honor. The simple impressiveness of it will never fade from the memory of any of us, and the seriousness of the thoughts evoked will remain indelibly impressed on us all. She was buried in the officers' section of the British military graveyard for this district, where hundreds of officers and men of the British expeditionary force are buried; those who sacrificed their all, and gave their lives for their King and country during the present war. The cemetery is a mile from our camp, within sight and sound of the sea, forever

chanting a requiem for the heroic dead. The graves are on a level plot of ground, surrounded on all sides except toward the sea by great sand dunes, a most peaceful and picturesque spot, ideal for the purpose to which it has been consecrated. On the south the hills are covered with trees and shrubbery; over the dunes to the north are level, cultivated fields. To the east are rolling, billowy meadows and sand dunes. At this time of the year, when the delicate brush of the changing season is transforming the beautiful summer green of Normandy into the most exquisitely delicate rainbow tints, the background of the simple, impressive service was indeed the most beautiful of nature's paintings—an autumn landscape.

"The casket was draped with the American flag and covered with flowers and wreaths; a huge blanket of chrysanthemums, made by the loving hands of her nursing co-workers, together with Old Glory, was buried with her. The flowers and wreaths from the other hospitals and from her many friends were placed on the grave afterwards. The casket was borne on a two-wheeled carriage, preceded by the Chaplain and four trumpeters, accompanied by eight senior officers of the unit, acting as pallbearers, and followed by the personnel of the unit, non-commissioned officers and men of the Royal Army Medical Corps, the Nursing Staff, and then the officers of the Twenty-third General Hospital (which is the official name of the Chicago Unit). In turn came the Nursing Sisters from the Canadian Hospital No. 1, British Sisters from the Twenty-fourth, Twenty-sixth General Hospitals and



Fig. 2. The funeral procession. Full military honors were accorded Miss Hamilton.

loving hands with ivy and autumn leaves. The Chaplain's voice was heard and the simple burial service was uttered, the silence broken only by an occasional sob, which relieved the tension of a suffering heart, and the creak of the straps that bore the weight of what had been reclaimed by the earth. The trumpeters sounded the 'Last Post,' and as the notes of the familiar call echoed and re-echoed among the hills, with every officer and soldier present standing at 'Attention' with hand at salute, they were endowed with a newer, deeper and more cherished significance. Many eyes were dimmed with moisture that had been strangers to tears for years. Convulsive sobs and freely flowing tears, blended with thoughtful, serious consideration, that opened up new views of past, present and future. Who will say that there was one present that did not go away strengthened, fortified, purified?"

Alcohol for Hospitals

Inquiries have been recently made about the method by which hospitals may obtain alcohol "duty free." Unfortunately the United States government has never recognized the hospital as being entitled to any consideration of any sort, consequently alcohol is put on the same plane as surgical instruments and scientific appliances; that is, the tariff, or tax, or duty on all these commodities is waived only in the case of educational and scientific institutions.

Hospitals having incorporated training schools and hospitals connected with teaching institutions, that is,



Fig. 3. Miss Hamilton was buried in the officers' section of the British military graveyard.

the Isolation Hospital, Allied Forces Hospital, Liverpool Hospital, nurses from the late Harvard Unit (known as the Twenty-second), the Duchess of Westminster's Hospital, Le Touquet, accompanied by the Chief Matron of Nurses, Miss McCarthy. In turn came the regular Royal Army Medical Corps officers, every hospital in the district being represented, accompanied by Colonel Carr, Assistant Director of the Medical Service.

"As the cortege slowly wended its way to the graveyard, tears were falling freely, and half-stifed, audible sobs were frequent, as they were massing lines deep around the open grave. The coffin with the physical remains of our American sister was slowly lowered into the grave, the bottom and sides of which had been covered by

medical schools, can get their alcohol duty free; other hospitals must pay the duty. Tax-free alcohol costs around 50 cents a gallon, purchased by the barrel; when the tax must be paid the price runs about \$3.50 a gallon.

This is an outrage, of course, and the government ought to be ashamed of itself to handicap its most profitable institutions in that kind of way. Some day this is going to be changed, but the hospitals will have to be very much closer together than they are now, and they will have to resolve to make a fight at Washington that Congress will listen to.



HEATING AND VENTILATING BRITISH HOSPITALS

While the United Kingdom Closely Follows America, British Engineers and Physicists Have Developed Some Preferences of Their Own—Plenum System Is Almost Obsolete and Unpopular—Some of the Methods

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The heating and ventilating of large buildings, by modern methods, are necessarily very closely connected. In some British hospitals, notably the New King's College Hospital at Denmark Hill, just outside of London, open hearth fireplaces are still employed for heating the wards, but they are assisted by radiators, and the ventilation there is closely connected with the heating system. The open hearth stoves that are still employed in modern hospitals are arranged to deliver a certain quantity of warmed air into the room. The air is led to a heating chamber at the back of the fire, through a duct from outside the building, and passes into the room through holes in the chimney breast, or at the top of the stove. Stoves have been made on these lines from sizes suitable for nurses' bedrooms, to those used in large wards. A few years ago they tended to become very much the vogue, but latterly radiators have largely taken their place.

In the great majority of hospitals, as in all large buildings, heating is accomplished by burning coal under boilers at a central part of the building, and distributing the heat by the aid of steam, and either hot water or air. It should be mentioned incidentally that in this matter, as in so many others, the United Kingdom has followed America, and at some distance.

In America the exigencies of the labor problem very early obliged even householders to employ central heating systems; and when the high buildings, which are such a feature of American cities, began to come into being, the distribution of heat from a central station became even more a necessity.

In the old country, what were called natural systems of heating and ventilating died hard; the system of natural ventilation is not dead even yet; but in large buildings the necessities of the case have obliged the distribution from central heating stations to be adopted more or less generally all over the kingdom, as well as in the colonies. In the United Kingdom at the present time the following systems of heating and ventilating are employed: the plenum system; the vacuum or extraction system; the hot water radiator system, and the steam radiator system.

In what is called the plenum system the air is cleaned, dried, moistened, heated, cooled and subjected to whatever conditioning may be desired, and is distributed into the wards and other parts of the buildings by means of ducts, the air being forced through the ducts by the aid of a fan at the entrance to the building and other fans at the entrance to the ducts. The vitiated air in the plenum

systems usually escapes from the wards, etc., by outlet ports leading to shafts, which again lead to what mining engineers would call an upcast shaft—a shaft in which warmer and lighter air is continually ascending. In the vacuum or extraction system the wards and other parts of the building are heated by radiators, hot pipes and open fireplaces, the vitiated air being drawn out through shafts either directly to the atmosphere, or into air chambers from which it is exhausted either by what are known as natural air currents, or by the aid of fans. The favorite method of heating wards and nearly every part of hospital buildings is by means of radiators, sometimes assisted by hot pipes fixed at the floor or near the ceiling. The radiators are usually placed under windows and an inlet for outside air is provided in the wall behind the radiator, shields being also sometimes used on the inside of the radiator to direct the warm air upwards. Radiators are employed sometimes alone, sometimes in addition to the plenum system, sometimes, as at the New King's College Hospital, in addition to open hearth stoves.

The term radiator is of course a misnomer, like many others used in connection with heating appliances in the United Kingdom. They heat by convection, not by radiation. The only apparatus in which radiation operates are the open hearth stoves mentioned above.

THE METHODS OF HEATING THE RADIATORS

As mentioned above, steam (usually generated in what are called in the United Kingdom Lancashire boilers, but the writer believes are called in America tank boilers) is the source of all heat in modern hospitals. Water tube boilers are used to a small extent, but the tank boiler is the favorite. None of the reasons which have led to the use of the water tube boiler apply to hospitals. The steam pressures used are low and boilers are always in use day and night from year's end to year's end.

Steam may be applied directly to the radiators, or it may be employed to heat water, which in its turn is caused to flow through the radiators. The direct steam heating system, except where the steam is at very low pressure, is now very rarely employed in British hospitals. It is a favorite method of heating operating theaters because of the speed with which the theater can be warmed and subsequently cooled.

Even there, however, the pressure at which the steam is delivered to the radiators is usually reduced to five pounds per square inch above the atmosphere. For steam heating the more common method now is to use steam in the radiators at less than atmospheric pressure. Exhaust steam from engines and steam heating appliances is sometimes employed for the purpose, but more commonly what is called "live steam" is taken from the boiler, and by the aid of a reducing valve its pressure is lowered to one or two pounds above the atmosphere. By the time the steam arrives at the radiators, it is at or below atmospheric pressure. The steam is allowed to expand inside of the radiators, the exhaust steam and the water which has formed by its condensation being withdrawn and delivered to a tank from which the water for feeding the boiler is drawn. The pump employed to withdraw the steam and condensate from the radiators is practically an air pump, and its effect is the same as that produced in steam condensers employed with engines furnishing power. The vacuum pump first withdraws the air from the radiators, and in so doing lowers the pressure opposed to the steam entering the radiators, and allows the steam to expand so that a smaller quantity of steam performs the same work as a larger quantity, if the pressure has not been lowered, and what is more important from the heating

point of view, the temperature of the steam in the radiator and that of the surface of the radiator itself is lowered to about 180° F.

With steam at five pounds per square inch above the atmosphere, as employed in operating theaters, the temperature at the surface of the radiator will be in the neighborhood of 220° F. Higher steam pressures, such as were in use in radiators for the heating of buildings a few years ago, were found unsuitable for hospital work because of the smell caused of "burnt air." Radiators using steam at what power engineers would consider very moderate pressure, cause the surfaces of the radiators to attain temperatures from 300° F. and upwards, with the result that organic matter floating in the air is burnt, and, it is thought, other oxides formed.

In one form of low pressure steam heating, in which steam below atmospheric pressure is employed in the radiators, a very ingenious method of controlling the temperature in blocks of buildings has been introduced. Each radiator is provided with a hand operated valve to regulate the rate at which steam enters the radiator.

In addition, each radiator or group of radiators is controlled by valves, through which the steam is made to pass, the valves in turn being operated by the difference between the atmospheric pressure of the air and the lowered pressure produced by the vacuum pump. The valves may be controlled by thermostats in the wards, or in the neighborhood, or they may be controlled by what the inventor has called switch valves placed in the heating station, several switch valves being mounted on a switchboard. It is claimed that by having the switch valves in the central heating station the attendant can save considerably in fuel during spring and autumn, by cutting off the supply of steam to blocks upon which the sun is shining. We are never certain when we shall have a sunshiny day nor how long the sun will shine. When the attendant observes that the sun is shining brightly upon a particular block he cuts off the steam from the block by throwing over the switch controlling it at the central heating station. If the sun disappears, steam is delivered again to the block by merely throwing the switch back. The arrangement of the switch is as follows:

The valve itself, at the radiator, or in the pipe supplying several radiators, is in the form of a plunger. It is moved by a spiral spring and the difference in pressure between the atmosphere and the vacuum produced by the pump. Normally the spiral spring keeps the plunger in such a position that the passage of steam to the radiator or to the pipes supplying the radiators is stopped. When the switch valve is turned so that a pipe leading from it to the valve and also leading to the low pressure side of the vacuum pump excludes the atmosphere and exposes the plunger to the lowered pressure produced by the vacuum the valve opens and allows steam to pass to the radiators. When the switch valve is turned in the opposite direction connection is broken between the valve controlling the supply to the radiators and the vacuum and opened to the atmosphere, the result being that the plunger is forced backwards, closing the valve and stopping the passage of steam through it. Thermostats in the wards do automatically what the attendant does at the switchboard. The thermostat is set for a certain temperature. If the temperature in the ward rises above that figure the thermostat breaks the connection between the controlling valve and the vacuum, the valve then being closed by the spiral spring. When the temperature falls below the figure at which the thermostat is set the connection between the vacuum and the controlling valve is opened, the plunger then opening the passage to the steam.

The thermostats employed in hospitals in the United Kingdom are of two kinds. In one the expansion and contraction of a tube of ebonite opens and closes the valves by the aid of levers and springs; in the other the same thing is accomplished by the difference in the expansion and contraction of two metals. Complaints were made to the writer in one hospital at Glasgow that the mechanism of the valve stuck owing to the atmosphere.

Thermostatic control is also obtained by the aid of compressed air. Air is compressed in any convenient manner, usually by a small electrically driven air compressor, and the compressed air receiver is connected to the steam valves of the radiators by small pipes, as with the vacuum control. The thermostat opens or closes a small valve between the compressed air receiver and the radiator valve and causes the latter to open or close when the temperature falls or rises.

Electrically operated thermostats are also used in much the same manner, a rise or fall in the temperature of the ward closing or opening an electric circuit and causing an electromagnet to operate in the same manner as the difference in pressure in the vacuum and compressor air systems.

METHOD OF USING HOT WATER

The water that is to circulate in the radiators is heated by three different methods; in two of them what power engineers would call feed water heaters are employed; in the third, steam is directly injected into the water. The makers have given the heating apparatus employed in the first two methods the barbarous name of "calorifiers."

A calorifier is a cylinder in which a nest of pipes is fixed between two end plates. Steam is arranged to flow through the pipes, and the water to be heated flows all round them. The steam, which is condensed by reason of delivery of its latent heat to the water, is drained away to the hot well or feed tank from which the boiler is fed.

Calorifiers are arranged sometimes in batteries near the boiler house (this is the latest modern arrangement), and sometimes at different parts of the building. Modern hospitals being arranged in blocks, a calorifier may be fixed in the basement under each block, and steam may be led to it. The water heated by the aid of steam in the calorifiers sometimes circulates on the simple thermosyphon system, but more frequently, in modern plants, is "accelerated," as it is termed, by the aid of a pump. In either case there are one or more rising mains, carrying the hottest water, leading from the calorifiers to the top of the building.

Usually a rising main is connected to a ring main at the top of the building, branch pipes lead from the flow ring main to the radiators at the different floors, and from the radiators to a return ring main in the basement, this last being connected to the calorifiers. The addition of a pump, by increasing the velocity of flow of the water through the radiators, allows of a very much smaller section of pipe being employed, and this is in itself a considerable advantage. It is this method which has enabled all the calorifiers for a large building to be placed in one central heating station near the boiler house. The pumps employed for accelerating the flow are sometimes of the reciprocating type and sometimes centrifugal pumps. With the reciprocating pump the arrangement is very similar to boiler feed pumps. Centrifugal pumps are usually driven by electric motors. The two kinds of pumps have their advocates, and there is a good deal to be said for each.

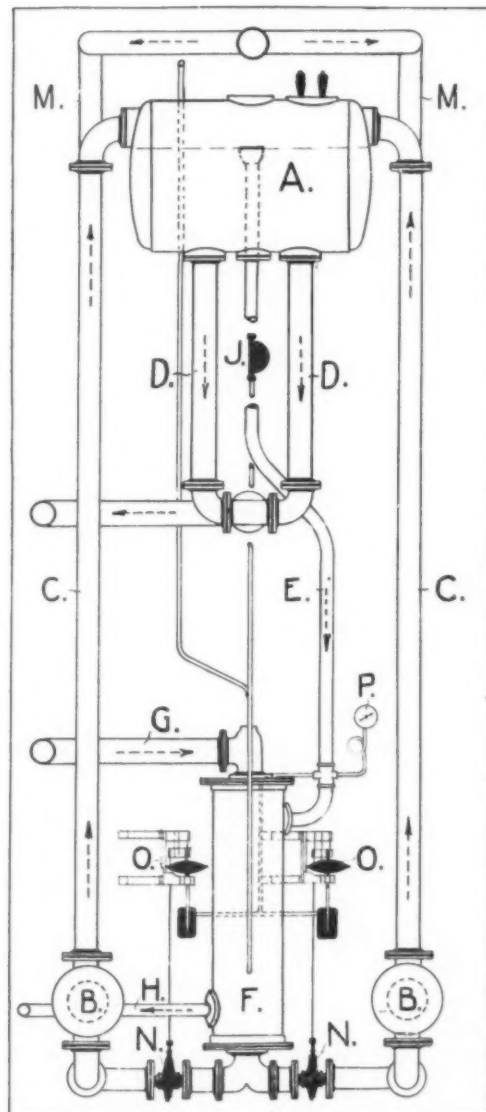
Where a steam pump is employed the exhaust steam from the pump can be used in the calorifier. In the new Manchester Royal Infirmary, for instance, where the ac-

celerated hot water system is employed, steam pumps are used and the exhaust steam from them and from other engines employed in the hospital provides the hot water supply. As practically all hospitals are now lighted electrically and employ electricity for motive power the arrangement of the centrifugal pump, driven by an electric motor, is a very convenient one. Its economy against that of the steam pump depends upon the cost of current.

At the New King's College Hospital, for instance, current is generated on the ground at about 1½ cents per

electricity generating plant, steam being employed in the engines driving the dynamos. In these cases the exhaust steam can be used for the heating water, so that the cost of the electricity is very small.

The system in which steam is injected into the water to be used in the radiators is employed at two large hospitals in Glasgow, and, the writer believes, at several others throughout the Kingdom. It is the invention of Captain Reck, of Copenhagen. Captain Reck provides what he calls a "circulator," which he inserts in the circuit of



- A. Expansion Tank.
- B. Circulator.
- C. Motor Pipe.
- D. Main Flow Pipe.
- E. Overflow Pipe.
- F. Condenser.
- G. Main Return Pipe.
- H. Condensation Pipe.
- J. Automatic Air Valve.
- K. Automatic Air Valve.
- L. Vacuum Valve.
- M. Steam Supply Pipe.
- N. Control Valves.
- O. Diaphragms.
- P. Pressure Gauge.

DESCRIPTION

The Expansion Tank (A) is fixed above the highest radiators, and the flow and return pipes are led up to and connected to it. The Circulator (B) is fixed on the main rising pipe several feet below the Expansion Tank, and through it low pressure steam is introduced, and this causes the water in the Motor Pipe (C) between the Circulator and the Expansion Tank to boil.

The connection of the ascending and descending pipes to the Expansion Tank is made in such a manner that the steam is separated from the water by gravity and discharged into the space above the water line in the Expansion Tank, so that the descending Flow Pipe (D) contains water only.

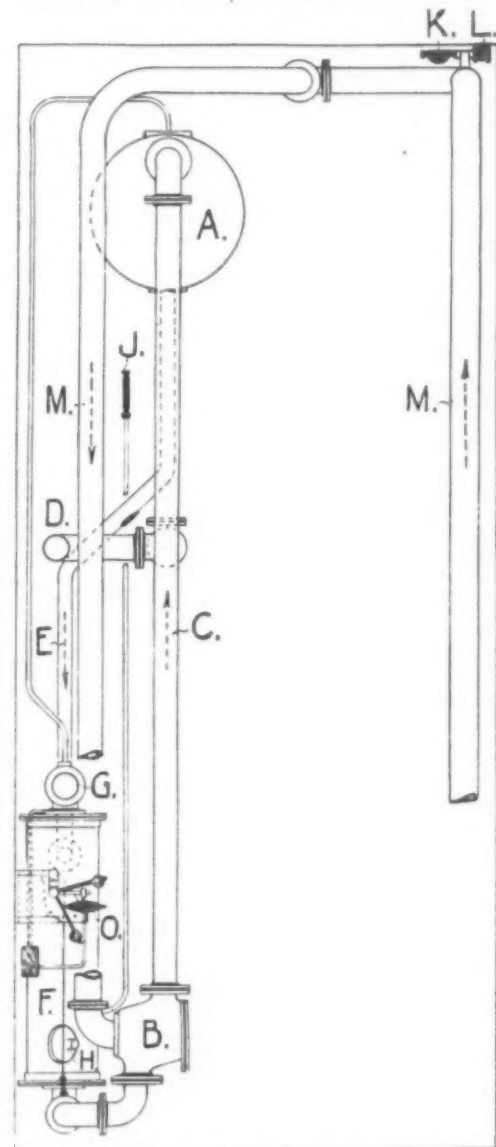
It will be seen that between the contents of the portion of the Motor Pipe (C) which contains water mixed with steam and those of an equal length of the Flow Pipe (D) which contains water only there will be a great difference of weight, and a circulating head is obtained which is equal to ¾ of the height of the Motor Pipe containing the emulsion of steam and water.

The Expansion Tank is fitted with a close cover and is provided with an Overflow Pipe (E) above the water line through which the steam discharged into the upper part of tank is led to the Condenser (F).

The Condenser consists of a cylinder with numerous tubes between waterway ends, and is fixed on the main Return Pipe (G) before the Circulator. The cooled water from the Heating Apparatus passing through the tubes of the Condenser condenses the steam which is brought to the space round the tubes. The water of condensation is carried in Pipe (H) to the Hot Well and reused for feeding the Boilers.

An Automatic Air Valve (J) is fixed to the Condenser to keep the space above water line in Expansion Tank open to the air except when the discharge of steam is so great that it reaches the air valve, when the air valve will close and prevent the steam from escaping.

Automatic Air and Vacuum Valves (K) and (L), respectively, are fitted on top of the Steam Pipe (M) for the purpose of discharging and readmitting air. The Air Valve (K) will remain open until all the air has been expelled, and will then close on approach of steam. The



Vacuum Valve (L) will be kept closed by steam pressure, and will open when steam supply is cut off so as to readmit air to take the place of the steam, and prevent a vacuum forming in pipe.

The Valves (N) are fixed on main rising pipe to Circulator to automatically control the proportion of steam and water forming the mixture in the Motor Pipe.

Those valves are regulated according to the pressure of the steam discharged into the upper part of Expansion Tank. A connection is made from the Overflow Pipe (F) to the Diaphragms (O), and the movements of the Diaphragms as the result of changes of pressure operate the levers to which the spindles of the Valves (N) are attached.

For normal working the Apparatus is set by means of the weights on the levers, so that the Valves (N) are full open when the pressure registered on the Gauge (P) is 7½ lbs. per square inch.

Board of Trade unit. The unit is 1,000 watts for one hour. Hence the centrifugal pump used there as the accelerator for the hot water supply should be economical. On the other hand, hospitals have been charged as high as 6½ cents per unit, and in that case the centrifugal pump would not be economical. Many hospitals have their own elec-

the hot water system. The circulator is a small cylinder into which the steam is injected by means of a nozzle. The steam is broken up inside the cylinder by the aid of perforated plates. The return water from the radiators passes through the circulator and is heated by the injection of the steam. The return water also passes through a

condenser before it reaches the circulator, the heat delivered to it by the steam in the condenser raising its temperature, the final temperature required being regulated by the quantity of steam injected in the circulator.

The usual expansion tank that is common to all hot water systems and which is always fixed near the top of the building plays an important part in the working of the Reck system. After passing through the circulator the pipe leading the water away contains not only water at a high temperature, but a certain quantity of steam, the result being the formation of what mining engineers call a motive column. The steam and water in the pipe leading to the expansion tank is lighter than an equivalent column in the flow pipe of the system. The circulator is fixed a few feet below the expansion tank, and what the inventor calls the motive pipe delivers the steam and water into the tank.

The expansion tank is made with an airtight cover and it fills two distinct offices. It provides room for increasing the volume of the water in the system when it is heated up, and there is a space above the highest water level in which steam that has not been absorbed by the water in the circulator or in the motor pipe is stated to escape from the water and to flow out of the tank to the condenser.

Fig. 1 shows diagrammatically the arrangement of the circulator, the condenser and the flow and return pipes. The flow pipe commences at the expansion tank, the hot water flowing downwards to the radiators instead of upwards as in the usual thermo-syphon systems, the cooler water from the radiators passing upwards through the return pipe and through the condenser to the circulator. The office of the condenser is to utilize the heat in any steam that is not absorbed by the water.

The usual overflow pipe in the expansion tank, as shown in the figure, carries down the steam which separates out through the water flowing up the motor pipe into the expansion tank and carries it to the condenser. The condenser is similar to the surface condenser employed by power engineers. It is also similar to the calorifier. It is a cylinder containing a nest of tubes held between two end plates, the end plates completely filling the cylinder so that it is divided into steam and water compartments. The cold water from the return pipe flows through the tubes, and the steam from the expansion tank flows round them, the condensate being carried off by another pipe to the feed water tank. One important feature that is claimed for the Reck system is that the circulator may be placed anywhere. With boilers, calorifiers, etc., it is practically necessary to place the heating apparatus in the basement. With the Reck system the circulator is usually placed high up in the building, a few feet below the evaporating tank. A convenient position is the tower, which is a feature of some institutions. The temperature of the water in the system is controlled by the quantity and pressure of the steam admitted to the circulator. The steam pressure is reduced by a reducing valve to from $2\frac{1}{2}$ to $7\frac{1}{2}$ pounds per square inch. One point should be mentioned: it is necessary that the steam pipe should be carried right above the expansion tank, in order that there may be no chance of water finding its way into the steam pipe from the circulator when the heating system is shut down.

In practice a steam pipe is carried above the evaporating tank, as shown in the drawing, and a connecting pipe dropped from it to the circulator. The question of the air present in the system and that of a possible vacuum in the system have also been provided for. A pipe is carried from the steam portion of the condenser, and at the

end of the pipe an air valve is fixed, the evaporating tank being in direct communication with the steam side of the condenser. Any air that is present that is brought over with the steam from the boiler, for instance, is forced out through the air valve. When an excess of steam flows into the condenser the air valve is closed until the steam excess is reduced. An air valve and a vacuum valve are fixed at the highest point of the steam pipe above the evaporating tank. Any air that is present in the steam is forced out through the air valve which only opens outwards. When the system is shut down and steam is being delivered to the circulator the vacuum valve opens and admits air to the steam pipe. The quantity of steam admitted to the circulator is controlled by special diaphragm valves, set for certain pressures and capable of regulation.

CONTROL OF TEMPERATURES IN THE RECK SYSTEM

The control of the temperatures at the radiators in the Reck system is obtained by two methods. Each radiator has the usual valve by which the rate of the flow of water through it is controlled. In addition, the temperature of the water entering any group of radiators is controlled by what the inventor has called "mixers." As with the thermo-syphon system, the temperature of the water at different parts of the flow and return pipes varies. It will be hottest where it leaves the evaporating tank and coldest where it enters the condenser. Branch pipes are taken from the hottest portions of the flow pipe and from the coldest portions of the return pipes, and are brought to a system of valves leading to the group of radiators, the temperature of which has to be controlled. By opening a valve allowing more or less hot water to flow along the pipe leading to the group of radiators or by opening a valve allowing more or less cold water to flow along the steam pipe the temperature of the water in the group of radiators can be raised or lowered at will. This is the method that is employed in two hospitals, the Western Infirmary, and the Royal Hospital for Sick Children in Glasgow, for controlling the temperature at the radiators. The Reck system has also been employed, the writer understands, with steam boilers such as would be suitable for small institutions, but he understands that the results with small boilers were not as satisfactory as with large boilers. He believes that no attempts have been made to utilize exhaust steam for the purpose.

COMPARISON OF THE DIFFERENT SYSTEMS

The plenum system, though it promised to be the vogue some years ago, has not found much favor with hospital authorities in the United Kingdom. The idea underlying the arrangement is remarkably good. The idea of maintaining an atmosphere always at the temperature required, always with the humidity required, sounds ideal. In practice, however, several important disadvantages have arisen. Complaints have been made that the air current brings dust into the wards. Unfortunately this complaint is apparently justified, but it would appear that it should be quite easily provided against. At the Leicester Infirmary, the man who looks after the apparatus told the writer that he had found that by frequently cleaning the ducts through which the air passes to the wards and providing an efficient filter for the air before it enters the ducts all complaints of the presence of dust have been eliminated. It is the old tale, of course, of looking after the apparatus.

In British hospitals cleanliness has been raised to a science. Wards in particular, staircases and corridors, and pretty much everything about a hospital is built first and foremost so that it can be thoroughly cleaned, so that

no dust or bacilli can possibly harbor anywhere. It will be evident, of course, that if dust is allowed to come in by way of the air current all the efforts of the architects, the designers of special coverings for walls and floors, and special methods of connecting walls and floors so as to offer no harbor for bacilli, will be neutralized. If, however, the same course is taken in building the ducts that is taken in the wards, and if in addition a perfect system of filtration is adopted, dust should be eliminated. It is, of course, not so easy to clean ducts as to clean wards, no matter how carefully the ducts may be laid. Ducts also, up to the present, the writer believes, have been built rectangular in section, and the corners would necessarily form harbors for dust and bacilli. The remedy would be, apparently, to build the ducts of an elliptical section, as sewers usually are, and to line them with materials that can be cleaned just as the walls of the wards are, and to eliminate all corners just as they are in the walls, and, above all, to have a rigidly carried out system of cleaning them. This all, of course, means a greater expense.

Placing an efficient filter in the path of the air current, though it materially assists in absorbing the dust, brings another factor into the problem involved in circulating the air through the system. At the Birmingham General Hospital, which is representative of the plenum system, the pressure provided for driving the air through the ducts is very small indeed, a fraction of an inch water gauge. One inch water gauge, it will be remembered, is rather more than $\frac{1}{2}$ oz.—say rather more than $\frac{1}{32}$ lb.—per square inch. This low pressure is only obtained by providing very large ducts, so that there is no appreciable resistance to the passage of air through them. The main duct, for instance, which carries the air from its first entrance into the hospital, is the subway common to all British hospitals, which constitutes a common way for workmen, and in which pipes, cables, etc., are fixed.

The subway at the Birmingham General Hospital is made rather larger than is usual in other hospitals, and as the plenum system itself makes it possible largely to do away with steam pipes, hot water pipes, etc., the air space is very large. The ducts leading to the wards are in proportion. The low pressure employed at the Birmingham General Hospital insures a very complete circulation of the air through the whole of the building without the slightest tendency to drafts of any kind. The building is entered by swing doors, which are continuously being opened and closed, and one can find no difference whatever in the air current or in the atmosphere when passing from a corridor to a ward or vice versa.

The filtering of the air is done outside the building; it is very efficiently done, but it seems to the writer that the air current passing through the subway and the other ducts is likely to lick up particles of dust and bacilli and carry them into the ward. Filters can be placed in the main duct, or in each duct, as is done at Leicester and elsewhere, but the addition of the filter requires an additional pressure to be given to the air current in order to overcome the resistance offered by the filter. At the Midland Hotel, Manchester, air is forced through the building under considerable pressure, filters being employed very largely, as is necessary in Manchester, and there are no perceptible drafts.

Another objection, and one which the writer believes has done more to prevent the adoption of the plenum system, not only in hospitals, but in public buildings generally, is the fact that apparently something is taken out of the air. Some years ago the present writer made a very careful investigation of the plenum system. Before entering upon it he wrote to several doctors and physicists,

who had made a study of it, and one and all gave the reply that apparently "something was taken out of the air." When going over the Birmingham General Hospital the writer was allowed to discuss the matter with doctors, nurses, and the officials of the institution. When the plenum system was first introduced into the hospital the doctors' and nurses' quarters were also included. Both doctors and nurses complained that when sleeping in "plenum" air they arose in the morning, or after their period of rest, unrefreshed and stale, and so strong was the feeling against it that the use of the plenum system was discontinued in their quarters, ordinary natural ventilation and open fireplace heating being resumed. So strong also was the feeling against it that in the Belfast Hospital, which the architect of the Birmingham General Hospital afterwards designed, the doctors' and nurses' quarters were specially omitted from the plenum arrangement. Doctors at the Birmingham Infirmary told the writer they found that convalescents did not get on as rapidly as they would have done, say in a country hospital, or even in the heart of Birmingham exposed to the ordinary atmosphere.

On careful consideration it appeared to the writer that the cause of all the trouble, the staleness of the nurses and doctors after sleeping in "plenum" air, the slowness of convalescence in "plenum" air, was due to the temperature at which the air all over the hospital was kept. Very careful registers were kept of the temperature in each of the wards and at different portions of each ward; and the whole building was maintained at a temperature as close to 63° F. as possible. The writer's view, which he expressed in a medical journal at the time, and which he has expressed in other journals since at different times, is that the something taken out of the air is oxygen. It will be remembered that the volume of 1 lb. of air increases with the temperature and vice versa; or to put it in another way, the weight of air in 1 c. ft. decreases as the temperature rises, which means that at 63° F. those who are living or sleeping in it inspire a smaller weight of oxygen during 6, 8, or 24 hours, than if the temperature were lower. The writer believes that everyone's personal experience bears out the above. We all know that when it is possible for us, we are better, healthier and stronger the lower the temperature of the air in which we are living, and that this is particularly true in the air in which we sleep.

There seems to the writer to be no reason whatever why the air entering different wards should not be at different temperatures and different humidities; and that doctors and nurses should be able to sleep in air as cold as they please. The ideal would be for each nurse or doctor to have complete control of the air in the room in which he or she slept as to temperature and humidity.

At the Manchester School of Technology something of this kind is in operation. Two separate ducts are led to each classroom, one containing warm air and the other cooled air. A valve at the entry ports, under the control of the lecturer, causes more or less air from either duct to enter the room. A further extension of this, which the writer believes is also adopted in some institutions, is to have the valve controlled by a thermostat. When the temperature rises the thermostat partially closes the port admitting warmer air and partially opens that admitting cooled air and vice versa.

The system which has been fitted up at the Children's Hospital in Glasgow for the operating theaters there is perhaps worth noting. The air is heated by passing over a coil of pipe in which steam is circulating, the flow of steam being controlled by a diaphragm valve, which in its

turn is operated by compressed air by the aid of thermostats in the operating theater. The air passes through a gauze screen filter on its way to the heating coil, and in addition a pan of water is placed in the path of the air, another steam coil being placed in the water. The heat delivered by the steam coil to the water causes it to evaporate, and the rate of evaporation depends upon the temperature to which the water is raised, the temperature of the air passing over the pan of water, and the tension of the vapor arising from the water as opposed to that of the vapor already present in the air. The rate of evaporation of the water in the humidifying pan is controlled by a diaphragm valve fixed in the path of the steam flowing to the humidifying coil, and the diaphragm valve is itself controlled by humidistat in the operating theater.

Though the plenum system has not found favor in hospitals, the arrangements in many cases are a close approach to it. For some operating theaters, for instance, air is heated by being passed over special forms of radiators, and is carried thence to ducts near the floor line, leading to exhaust shafts, through which the air is forced out into the outer atmosphere by the aid of fans. The plenum system is also adopted for the out-patient department in many hospitals where it is not employed for the wards.

As between the remaining systems that have been described those most in favor are heating by steam below atmospheric pressure and heating by accelerated hot water. The arrangement mentioned above of radiators fixed under the windows with special louvred gratings in the wall against them, the radiators being either heated by steam or hot water, is largely the favorite for general ward heating. One point that should be noted in connection with hospital heating is that during recent years economy in heating has been very much more studied than in previous years.

It is the usual experience that when some new apparatus is introduced economy is not much studied. Later on, from various causes, economy is obliged to be studied. This has been the experience with power plants in connection with industrial work. When power was first introduced the advantages were so great that the cost of the power was not considered. Later on, when everyone had power and when competition was keen, the cost of the power came up for consideration.

In hospitals, now, all exhaust steam and all condensed water produced from heating apparatus and in steam pipes is carried away to what is called the "hot well" or the "feed tank." This is a tank, placed in any convenient position, from which the water to feed the boiler is taken.

In most hospitals, also, condensers are employed of various forms, very much on the lines of those described in connection with the Reck system, in which exhaust steam is used to assist to heat the water, either for the boilers or for the hot water service. Many hospitals also have fitted "economizers" to aid in heating the water for the boilers. The economizer is a device that was introduced into power service some years ago. It utilizes the waste heat in the hot gases from the boiler furnace to raise the temperature of the water that is to feed the boilers. Where exhaust steam is used for heating purposes it is necessary that the oil, which is always present, which is carried over with the steam from the steam cylinder, should be abstracted from it before it is allowed to enter heating appliances. Hence nearly all hospitals where exhaust steam is employed have also adopted oil separators. An oil separator is an apparatus in which the steam and oil are separated by subjecting them to certain motions, the separation being completed by the operation of gravity.

HINTS FOR HOSPITAL SUPERINTENDENTS.

We have had something lately about inventory systems for the hospital. Such a system can be made extremely useful provided it is not carried out to a burdensome extent. It is impossible to keep a useful inventory of coal, ice, the day's food supply, such as vegetables and fruits; but not at all difficult and most useful to keep account of rubber gloves, thermometers, "hypos," water bottles, cotton and gauze and the many other commodities that must be purchased in quantities from time to time. Some hospitals keep an account of purchases and distribution of sugar, flour, potatoes and other standard food supplies. This is done by adding new purchases to the stock "on hand" in a book in which the articles are kept alphabetically. Distributions from the store room are made, in these articles, by pounds or bushels. A good form for such a stock book has been prepared; it can be kept as a book or preferably as a card index, with cards approximately six inches wide and four inches deep.

Thirty years ago it was customary in large hospitals to have an "officer of the day." The practice seems to have been abandoned, but it is again suggested by Doctor John R. Hicks, Director of the Port of New York, in a paper published elsewhere in *THE MODERN HOSPITAL*.

There is no doubt that the assigning of positions of trust to interns and the younger resident medical men gives them an interest in the hospital affairs that otherwise they would not have. It also helps them greatly in their training; and last, but by no means least, these young men very soon catch on to administrative routine practices, and can take a very large number of details off the shoulders of the administrator of the institution.

In hospitals so small that they have only two or three interns, the "officer of the day" might be the "officer of the week" and the officer might assume many of the details of management, especially in the medical service, admission of patients, and a vast amount of routine detail. This system ought to be more in vogue than it is.

There are many hospital superintendents who do not, as a routine practice, meet the public; they transact business through an assistant, a trustee, or a member of the medical staff. This is all wrong; your public is the most delicate factor with which you have to reckon; its members, when they call on you, are in trouble, are nervous, anxious, and impatient. You are superintendent of the hospital because you are supposed to have tact, diplomacy, patience, and a knowledge of hospital conditions, including the psychology or mental attitude of everybody concerned and every situation.

You can very often smooth out a tangle, calm a storm, and set things right by taking personal charge of an incident, and meeting the people in trouble. If an assistant could do it as well or better than you, he or she ought to have your job.

You say you are too busy to see the public? Yet you are working all the time at the particular job you think is the most important; is there any job more important than to see the public well served, and in a good humor with your institution?

Plans have been accepted for an addition to Mount St. Rose Hospital, St. Louis, to cost \$150,000. This institution is devoted to the care of persons suffering from tuberculosis, both in the incipient and advanced stages of the disease.



The Sanatorium Today

BY ALBERT WARREN FERRIS, A. M., M. D.,

Saratoga Springs, N. Y., Superintending Director for the Commissioners of the State Reservation.

The term "sanatorium" or "sanitarium" has been as much abused as even the title "professor." It has been a euphemism for any shelter for chronic lunatics. It has been arrogated to itself by many a boarding house with rooms to let to the ailing or to the person whose ailment is a figment of the imagination. The Battle Creek Sanitarium claims to have been the first to use the term, and in its case the word meant, and still means, an establishment where natural methods and natural foods, hydrotherapy, electricity and mechanotherapy displace drugs and bad habits of living. The opprobrium attaching to the term sanatorium was, a few years ago, increased by the feeling that an institution bearing that name was more or less a refuge for incompetent or unsuccessful practitioners. This reputation has been outlived and this rumor has been met, not by changing the name, but by maintaining a high standard of excellence.

A patient goes to a sanatorium in order to live under the roof with his physician; to see him when he wants him; to have a feeling of confidence that comes with the certainty of swift medical relief should emergency arise. This close relation of patient and physician affords opportunity for the fullest examination, the most thorough study, and the choice and application of the best methods of treatment; and herein lies the basic idea of the sanatorium, if we add that clean air, green trees, abundance of sunlight, and the sense of freedom and restfulness that space brings must be provided to make our picture perfect.

The atmosphere of the hospital should be absent, although some sanatoriums embrace in the category of their facilities a separate hospital building. There should be few bedfast patients. The suggestion the patients get from each other should be one of improvement, of convalescence.

In its provision for daily living the establishment should approach the hotel in equipment, service and convenience. Yet it should preserve as far as possible the feeling of the home. Organization should be so tactful as not to be oppressive; hurry and bustle should be eliminated; and a spirit of cheerful friendliness should mark the relations between physicians and patients. The absence of apparent control beyond the day's routine, the prevention of unnecessary noise, the elimination of avoidable delays, and the removal of friction will combine to reassure the doubtful, to cheer the weary, and to calm the irritable.

But the great opportunity and prime value of the sanatorium lie in the provision and utilization of diagnostic facilities. Excellent chemical and physiological laboratories are essential. The patient should be weighed, measured, assayed, cupelled and tested in all ways, till the

summary conveys an accurate and adequate conception of his deviation from the normal, his organic changes and his functional irregularities. It will indeed be surprising if physicians and physiological chemists in our best sanatoriums do not solve some important problems in metabolism.

The equipment for treatment must include hydrotherapeutic apparatus for administering sprays, jets, douches and affusions of all kinds; tubs for mineral, brine, oxygen and Nauheim style of baths; electro-thermal and electro-chemical baths; a room for brine vapor inhalations, and one for radium emanation treatment; conveniences for colon irrigations, and for giving packs, fomentations and compresses; cabinets for hot air and for electric light baths; an electro-therapeutic department; a roentgen-ray department; adaptable tables for massage and the various rubs, or passive motions; Swedish or Zander style of vibratory apparatus; sparring bags; a gymnasium with full equipment, and outdoor and indoor swimming pools.

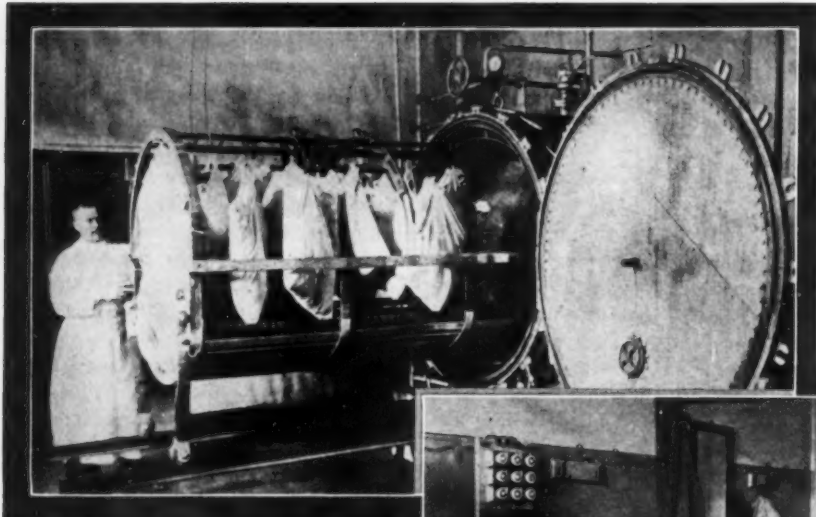
Statisticians of life insurance companies and directors of welfare work among factory mechanics, bank clerks and other large bodies of indoor workers, as well as commissioners of health in cities, all call attention to the startling amount of slowly disabling organic disease which is reducing the value of the unobserving citizen. The keynote of human activity today is efficiency. We must secure it, increase it and prolong it. With the concession of shorter hours, during recent years, comes the demand for concentration of attention, intensive effort, and continued efficiency.

Why does the formerly proficient brain or muscle worker become less efficient? Why does he suffer from early fatigue, itself an expression of disease? What has impaired the natural powers of nutrition, the natural immunity, the natural power of resistance? Is it because of food poisoning, or gradual drug poisoning—for tea and coffee, alcohol and tobacco are drugs? These questions the sanatorium must answer for the patient. It must prescribe the proper diet, exercise, rest, recreation and treatment. It must restore the patient as far as possible, teach him right living, provide him with rules for his future life, and adapt him to the environment to which he must return and which he probably can change but little. It must, in short, set itself to the task of life conservation and life extension. The conscientious physician in the honest sanatorium of today accepts as his office and duty the attempt "to render growth more perfect, life more vigorous, decay less rapid, and death more remote."

An appropriation of \$50,000 for an addition to the criminal insane ward at the state hospital at St. Peter, Minn., has lately become available, and it is planned to begin the construction of the building as soon as the necessary preliminary arrangements can be made.

The proposed addition to the Silver Cross Hospital, Joliet, Ill., for which a fund is being raised, is to contain private rooms, an operating suite and a maternity department. Forty-four patients will be accommodated. The main building will be a four-story fireproof structure, 41x110 feet. There will be a separate power plant and laundry building. The total cost of construction is estimated at \$80,000. Plans for the addition have been drawn by Architect C. W. Webster, Joliet.

The Illinois State Nurses' Association has recently elected officers as follows: president, Miss Minnie Aherns, superintendent of infant welfare work in Chicago; first vice-president, Miss Elizabeth Asseltine, superintendent Ryburn Hospital, Ottawa; second vice-president, Mrs. Gertrude Kilby, Bloomington; treasurer, Miss Catherine Thompson, Chicago; secretary, Mrs. W. F. Bache, Chicago.



Photograph from Underwood & Underwood, N. Y.

Fig. 1. This is the disinfecting chamber of one of the leading hospitals in Petrograd. The photograph shows the clothing of some of the patients being placed in the huge cylinder.



Photograph by Underwood & Underwood, N. Y.

Fig. 2. Electric hot air apparatus used in treatment of stiff joints among German wounded.



Photograph by Underwood & Underwood, N. Y.

Fig. 3. Mechanotherapy in a German hospital—leg movements, foot turning, knee turning, and hip stretching.



Photograph by Underwood & Underwood, N. Y.

Fig. 4. Knee stretching and body stretching apparatus used for German wounded.

Scenes from the Battlefields of Europe

While men have been killing each other, other men and women have been alleviating the sufferings of the hurt and fitting them to renew the fighting. Unfortunately the exigencies have prevented the world from obtaining the full value of medical and surgical improvements on the

battlefields of Europe, and only after peace comes will it be possible to have the benefits of the marvelous achievements of the medical and nursing professions under the stress of necessity, for the benefit of the sick and hurt everywhere.

But a few scientific articles telling about surgical and



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Fig. 5. Scene in the beautiful open-air hospital of Mr. and Mrs. Astor at Clifden Hall. In the cots are some of the Canadians who saved the Allies' line at St. Julien.



Copyright by Underwood & Underwood, N. Y.

Fig. 6. English Red Cross nurses. At the left is Miss Muriel Thompson, who has been decorated by King Albert of Belgium personally for bravery in the field.



Photograph Underwood & Underwood, N. Y.

Fig. 7. Austrians disinfecting Russian wounded before they are taken to the hospital. While the men are being treated their clothing is also being disinfected in the boiler shown next to the tubs.



Photograph Underwood & Underwood, N. Y.

Fig. 8. The American Hospital at Neuilly.

nursing work have been published, and many thousands of photographs have been taken, showing scenes "somewhere in Europe," in which doctors and nurses and their aids are relieving the injured.

THE MODERN HOSPITAL has no desire to compete in illustration of these scenes with the popular magazines or

the daily papers; but there are some very pertinent lessons to be learned by the hospital people in this country from some of these illustrations, and from time to time THE MODERN HOSPITAL will present a few of the most illuminating. A small installment of these pictures is presented herewith.

PHILANTHROPY AND THE PUBLIC HEALTH

THE NEW YORK ASSOCIATION FOR IMPROVING THE
CONDITION OF THE POOR.

BAILEY B. BURRITT, General Director.

WILLIAM H. MATTHEWS, Director,

Department of Family Welfare.

DONALD B. ARMSTRONG, M. D., Director,

Department of Social Welfare.

A Constructive Program for the Health Supervision of School Children in New York State

BY EDWARD F. BROWN

Among some of the more prominent activities started by the Association, which have subsequently become separate entities, are, the New York Juvenile Asylum and the De Milt Dispensary, both of which were founded in 1851; the Northwestern Dispensary, founded in 1852 at a cost of \$42,000; the Society for the Relief of Ruptured and Crippled, the establishment of public baths costing \$28,000; Seaside Hospital, built at a cost of \$250,000, and



Fig. 1. Refractive errors in school children are a great handicap to study. Eye clinics and the provision of eye glasses for needy children remove the difficulty.

the Infants' Milk Stations. Members of the staff of the Association from time to time, in a semi-official capacity, represent the Association in the inauguration of public service activities of this sort.

With the aid of the Bureau of Welfare of School Children, there was organized in 1914, as a result of the state medical inspection law, The New York State Association of Medical Inspectors and Physical Educators. This organization has just held its second annual meeting. Its purpose is to weld the forces working towards an effective health program for school children, standardize the technique of school medical inspection, nursing services, etc. The

Legislature last year had failed to provide ample funds for this work, which is under the State Medical Inspector of Schools of the Department of Education.

At the annual meeting of the Association of Medical Inspectors and Physical Educators of the State of New York held at Rochester on November 23, 1915, the Presi-



Fig. 2. Proper medical supervision and the provision of warm lunches at school reduce the malnutrition which is so widespread among school children.

dent was authorized to appoint a committee to wait upon His Excellency, Governor Charles S. Whitman, and the Honorable John H. Finley, Commissioner of Education, with a proposed program of work for the Division of School Medical Inspection for the year 1916, for which the Association is to urge the Legislature to provide funds in the budget which is now being prepared.



Fig. 3. Defective nasal breathing and hypertrophied tonsils constitute some of the main causes of backwardness in school work.

The committee has, pursuant to its commission, submitted the following program:

1. Survey systems of medical inspection in all districts of the state, subject to the medical inspection law.
2. Create an Advisory Council to the State Medical

Inspector consisting of the foremost school hygienists in the state to which to submit questions for advice and information.

3. Formulate standard schemes for
 - a. School medical inspection.
 - b. Sanitary school surveys.
 - c. Nursing service.
 - d. Clinical facilities.
 - e. Educational hygiene.
 - f. Forms and record keeping.

These schemes should be constructed in such a way that they may be adapted to the needs of different communities in the state.

4. Stimulate through a definite set of publications issued under the imprint of the State Department of Education a state-wide interest in school hygiene.

5. Develop a system of reporting to the State Medical Inspector concerning the health of school children in different communities in order to grade districts on a basis of the efficiency of the health care of children. When a community falls below a minimum standard, it would then become the duty of the State



Fig. 4. Clinics are needed for the operation and treatment of children suffering from tonsils and adenoids.

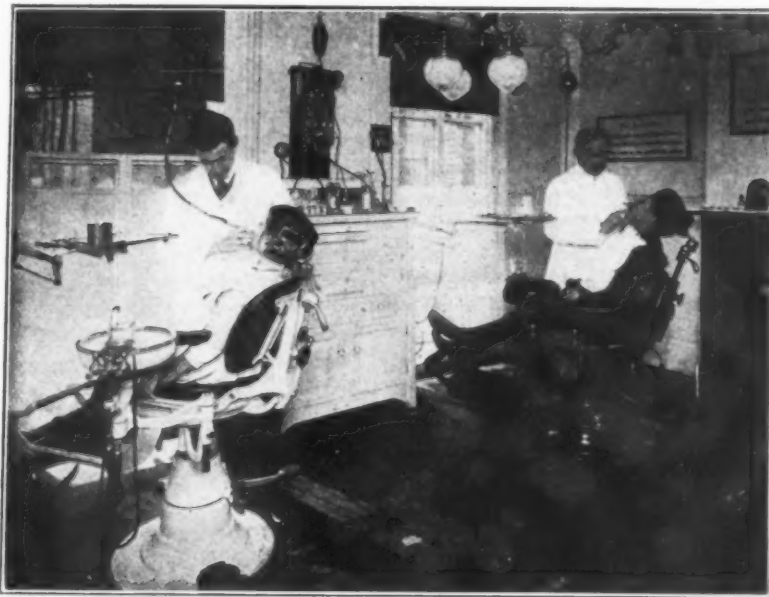


Fig. 5. Every community, every rural district should have its dental clinic for school children.



Fig. 6. Why dental inspection and dental clinics are needed.

Medical Inspector to cooperate with the local authorities in bringing their health work of school children to a more adequate basis of efficiency.

The Medical Inspectors' Association has issued the following statement:

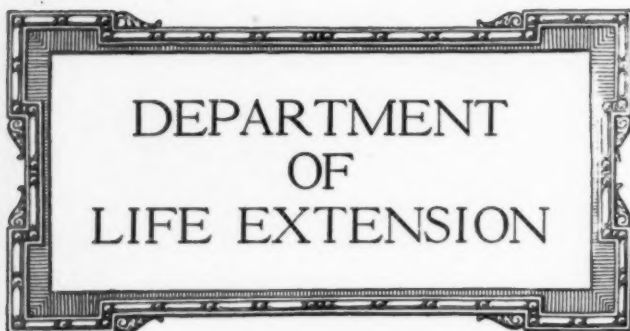
"We look with justified concern on the failure of the Legislature thus far to make adequate provision for the vitalization of the medical inspection law of the state. The medical inspection law covers children in all the districts of the state except cities of the first and second class.

"Whatever may be the merits of a program for a national defense, no step which did not contemplate intelligent and adequate provision for the health of school children would be well based.

"What is needed more than anything else is a comprehensive program of education. This can best be carried forward through the provision made by the medical inspec-

tion law which is under the jurisdiction of the State Department of Education. In order to do this, this department should have at its disposal at least \$50,000 to start this work."

Plans approved for a new plant for the Sacramento County Hospital, Sacramento, Cal., call for an administration building, six wards and a service building, surrounding a court designed to be used for patients. The buildings are to be connected by a corridor running around the group, under which is a tunnel to be used for conveying food, laundry and all things which it is desired to keep out of sight. Sun rooms are planned for the rear of each of the wards, which are so arranged that they are complete in themselves. There will be a central kitchen in the service building, from which food will be supplied to the wards. The cost of the new hospital is estimated at \$400,000. R. A. Herold, of Sacramento, is the architect.



Conducted by EUGENE L. FISK, M. D.
Director of Hygiene, Life Extension Institute, Inc.
 25 West Forty-Fifth Street, New York City.

Preparedness That Makes for Prosperity

BY EUGENE L. FISK, M. D.,

Director of Hygiene Life Extension Institute, Inc., New York, N. Y.

Many of the brainiest and most patriotic of our citizens cannot agree as to the need for large armies, large navies, military instruction, and other measures that are included in thorough military preparedness in the strict sense of the word. Some are for large fleets, others for large armies, others for military training camps, or universal military service. Others are for none of these things, but hold that our best protection lies in a peaceful aspect and a general national policy of minding our own business. There is no lack of plans and methods to cover the possible needs of this country should a foreign enemy attack us.

There is no strictly military measure that does not involve some form of increased taxation, or other burden placed upon the mass of the people. Even in the short journey we have already taken toward technical military preparedness, we are confronted by a governmental estimate of an appropriation for army and navy in 1917 exceeding that of 1916 by \$146,857,235. I do not contend that this is not a wise provision. This kind of preparedness is not the subject under discussion. But such figures serve to show what serious financial problems in revenue raising a thoroughgoing technical military preparedness creates.

With the merits of these various plans for army and navy preparedness, this article has nothing to do. Neither does it invite debate concerning them. There are, however, other measures of preparedness that would prove in every way helpful to the masses of our people, which are receiving but scant and superficial consideration. One of the lessons derived from the present war is the enormous value to a nation at war of industrial efficiency, of highly organized and smoothly working industrial machinery. Back of the firing line there lies the factory. A highly trained force of soldiers without this background of industrial organization and supply would be as ineffective for defense as an untrained mob or a herd of cattle.

We have seen a successful Russian offensive turned into a heart-breaking though heroic retreat largely because of industrial insufficiencies. No greater strain could be put upon the fortitude, the endurance, the morale of the troops in a defensive line than the knowledge that their equipment is inferior to that of the enemy, that behind them there is confusion in the councils of their government over questions of equipment and supply. What greater stimulus to endurance, as well as to *elan* and sustained offensive, could there be than a feeling of confidence that those at home are organized and sustaining their part of the burden; that heroic efforts to drive out the invader will not be halted for lack of mere machinery! There are many factors

entering into the totality of industrial efficiency, using the term in its broadest sense, as connoting not only work well done, but a happy, contented and harmonious working force.

But there is one factor that is fundamental, that underlies all others relating to industrial organization and development, and that is health. So far as this may be governed by hygienic conditions in factories, such as light, ventilation, dust removal, safety devices, protection against metallic poisoning, etc., it may be said that the importance of this factor has not been underestimated during the past few years.

There has, however, been a failure fully to appreciate the importance of determining the quality of these industrial lives that are being brought under the influence of efficiency methods and scientific management of merely sanitary or emergency protection.

The condition of health of the worker places a certain limitation upon what can be accomplished with him in the way of improving his efficiency and his productivity, and maintaining him in discipline and loyalty to the service in which he is employed. Efficiency counts for little if it cannot be controlled and directed, if it cannot be continuously held above a certain level and kept operative. Is not industrial disharmony quite as serious a weakness in the offensive and defensive of war as would be an equal degree of military insubordination?

The value of methods adopted to protect the health of the worker cannot be measured alone by the reduction of the accident and sickness rate. Such reduction may afford concrete and forcible argument for the adoption of such methods. But the American habit of measuring everything in dollars and cents is not always a wise one. It causes us to overlook substantial benefits which cannot be so measured.

It was very gratifying recently to hear the medical director of a very large industrial plant state that in his company they did not think so much of the reduction in the accident liability that had followed their welfare and medical measures, as they did of the general atmosphere created in the plant—that of cooperation between employer and employee, of cheerful service.

It is gratifying to find that an occasional grouch among the employees, or an occasional petty tyrant among employers, cannot hold back this movement toward sane and harmonious working relationship between capital and labor.

As an element in preparedness, this is a factor of tremendous importance. Who can say what underlying condition of discontent, of factional strife, of disharmony and disorganization might be revealed and let loose to embarrass our defensive efforts should the cruel test of war be applied?

That this is no academic theory has been fully shown during the present war. Neither should it be regarded as an academic dream, in the event of our developing a highly organized industrial force, working in harmony with their employers, that an overwhelming superiority in this regard over foreign nations might not well prove as efficient a deterrent to foreign aggression as superiority in fleets and armies.

There is available an abundant supply of courageous men to defend our country—untrained, it is true; but the knowledge that all the modern machinery of war (using the term in a literal sense, for war is now largely a matter of machinery) could be made quickly available in the event of attack might well cause foreign nations to hesitate in attacking us.

It is not beyond the bounds of reason to formulate some plan whereby a highly organized development, along peaceful lines, might prove the best preventive of war, as well as the most efficient protection in the case of war.

That this should be the only defensive measure is not here maintained, but I do maintain most firmly that enormous expenditures for army and navy might easily be rendered useless by failure to create that industrial organization which must form the background for successful modern warfare.

The importance of this subject is emphasized by the knowledge that is daily accumulating regarding the mortality trend in this country and the condition of the health of industrial workers. Much evidence has lately accumulated to show that the average industrial worker is below par, taking par to mean a reasonable and attainable condition of physical soundness and efficiency.

So far as this is due to shop environment and insanitary surroundings in factories, there is a vigorous movement toward improvement. But there is need for greater interest in the matter of studying the physical condition of the worker—so far as it is due to heredity and general habits of living—to what degree he is physically adapted to this work, and the influence of his occupation, per se, apart from matters of sanitation.

In the work of the Life Extension Institute, it has been found that in any large group of workers, from 5 to 8 percent are seriously impaired. They have organic defects which require that serious consideration be given to the kind of work they are fitted to undertake. Rarely is an individual found whose condition cannot be improved by some hygienic suggestion, and more than half are affected with disabilities or impairments that place them far below their attainable condition of health and efficiency.

It is not enough to examine industrial workers prior to employment, although this is a very valuable measure. Also, it is not a wise or feasible plan to attempt to operate an industry solely with "gilt-edged" individuals; there are not enough of such individuals in a community to carry on any industry.

There are few who apply for employment who are not eligible for some type of work. The most important indication is to keep track of these workers, examine them periodically and assist them to improve their general condition.

An individual who is "gilt-edged" today may in the course of a few months become impaired and require attention. If his impairment is ascertained at an early stage, it may be corrected and the worker restored to his former sound condition—or at least further impairment may be checked.

The tremendous value, from an efficiency standpoint, of the constant influence of such a system on the mass of industrial workers cannot be questioned. Neither can its effect, in promoting happier conditions and more harmonious relations, be doubted, a result of even greater economic and social importance than increased productivity.

I have before referred to the mortality trend in this country. Some figures are here appended from official sources, which show the danger of lulling ourselves into a sense of security because of the fall in our general death rate.

There is no evidence that the expectation of life is increasing at all ages in this country, and there is much evidence to show that it is decreasing at those ages where life strain is chiefly reflected and where man should be at his prime as a worker. This increase of mortality from chronic disease has been taking place not solely among the

pampered, luxurious classes, but among occupied males generally, as shown by the following tables:

COMPARISON OF EXPECTATIONS OF LIFE, NEW YORK CITY, ENGLAND AND WALES, AND LONDON

Ages	New York City† 1909-1911		England and Wales* 1910-1912		London* 1911-1912	
	Males	Females	Males	Females	Males	Females
At birth	44.55	48.8	51.50	55.35	.....	.....
10	46.95	50.4	53.08	55.91	.....	.....
20	38.26	41.7	44.21	47.10	42.35	46.71
30	30.34	33.6	35.81	38.54	33.87	37.94
40	23.34	26.2	27.74	30.30	26.03	29.67
50	17.11	19.1	20.29	22.51	19.09	22.17
60	11.71	12.9	13.78	15.48	13.09	15.39
70	7.66	8.2	8.53	9.68	8.17	9.57
80	4.66	4.9	4.90	5.49	4.79	5.39
90	2.24	2.8	2.87	3.16	2.75	3.10

The above tables show, both among males and females, that the expectation of life is greater at every age period in England and Wales and in London than in New York.

*Supplement to the Seventy-Fifth Annual Report of the Registrar-General of Births, Deaths and Marriages in England and Wales. Part I—Life Tables, pp. 56-85.

†Annual Report, Department of Health, City of New York, 1912, pp. 176-177.

DEATH RATE PER 1,000 IN PRUSSIA BY AGE GROUPS
1875-80 TO 1901-1910

Ages	1875-1880*		1881-1890*		1891-1900*		1901-1910†	
	Males	Females	Males	Females	Males	Females	Males	Females
1-2	71.8	69.1	70.2	68.0	58.0	55.5	45.3	43.1
2-3	37.1	36.1	36.3	34.6	24.7	23.8	16.5	16.0
3-5	22.2	21.7	20.8	20.7	14.2	13.9	8.9	8.8
5-10	9.3	9.2	8.8	9.0	5.9	6.1	4.2	4.4
10-15	3.9	4.3	3.8	4.3	2.9	3.3	2.4	2.7
15-20	5.1	4.6	4.8	4.5	4.3	3.8	4.0	3.6
20-25	7.7	6.3	7.0	5.8	6.0	5.1	5.2	4.6
25-30	8.6	8.2	7.6	7.5	6.1	6.1	5.3	5.5
30-40	10.9	10.3	10.6	9.7	8.3	7.9	7.0	6.7
40-50	16.7	12.3	16.8	11.7	14.3	10.0	12.5	8.6
50-60	27.6	20.7	26.9	19.8	24.2	17.5	23.5	16.0
60-70	53.0	46.3	51.4	44.8	48.7	42.0	45.5	37.4
70-80	113.3	106.2	110.2	113.9	102.5	97.1	100.6	102.0
80 & over	236.4	227.2	235.2	229.0	233.1	223.3	214.4	202.6

Note that in both sexes there was a steady and substantial decline in the death rate at all age periods of life during the last quarter of the nineteenth century.

*Koeniglich Statistisches Bureau in Berlin Preussische Statistik. Hft. 184, p. iv. ff., Berlin.

†Zeitschrift des Koeniglich Preussischen Statistischen Landesamts, Berlin, 1912, p. xvii.

All of which emphasizes the need of giving attention to the health of our industrial classes as one of the fundamental factors in preparation either for war or peace.

To give more concrete expression to these suggestions there should be outlined in this country an industrial organization, in touch with the general government in such a way that the government would be able to tell at any moment—just as Von Moltke brought forth his plan of war when the hour struck—the exact facts regarding our industrial preparedness, our industrial machinery available for making munitions and supplies, and sustaining the battle line.

In other words, instead of waiting, as England did, until the war was far advanced to find out what her industrial resources were, and to organize them for victory in the face of industrial unrest and disaffection, we should know them in advance, and should have some kind of an organization perfected whereby we could quickly start in motion the vast and complicated machinery necessary to assemble and govern and guide this interior army without which the uniformed force on the fighting line would be mere helpless food for cannon.

That kind of a plan on paper would be of great value if it could count upon a stable, healthy and contented army of industrial workers. If it represented an unstable, and discontented army, below par physically, these deficiencies would be felt just as though they existed on the firing line.

With industrial organization and development moving along the lines of health improvement and physical well-being, recognizing these factors as fundamental to all

others making for efficiency, there would be put into action forces antagonistic to certain enervating and degenerative tendencies that in history have so often accompanied great cultural movements and industrial development.

The merit of this proposition of industrial preparedness, based upon industrial wellbeing, lies in the fact that it in no way interferes with the development of peaceful activities and lays no burden of taxation upon the people, but pays dividends in prosperity and happiness.

It is that kind of preparedness that is not a stimulus to war. On the contrary, it is a deterrent to war, because there is none of the false glamor of military glory surrounding industrial progress and achievement.

Economists differ as to the future of business in the years following the close of the present war, but assuming that there will be an era of industrial progress and activity in the fortunate land where the brain and sinew of the nation have not been shattered and destroyed, it behooves those who would guide that nation to give thought to the lines along which these industrial activities may be urged.

The value of studying and improving the physical condition of the workers, because of a possible need to place those of fighting age on the firing line, is another phase of the subject which should be considered, although this takes us beyond the limits of industrial preparedness which forms the subject of this paper.

That much is being done through the Government to study and to improve industrial conditions as related to health is well known, but they are the normal and leisurely activities that accompany the development of any civilized government. This subject of industrial preparedness, built upon the foundation of industrial wellbeing and contentment, is one of acute and pressing importance, not secondary to that of military preparedness *per se*.

The weight of enthusiasm of patriotism and statesmanship and organizing ability that is being thrown into the scale for armanent and military training should be thrown with equal force in favor of industrial preparedness.

There is such a thing as being too busy, as well as too proud, to fight. To the man busily at work fighting seems puerile and senseless; but the power to work sounds a note of warning that the power to fight—and what is more, the power to endure—is there.

Dr. Richard H. Hutchings, superintendent of the St. Lawrence State Hospital, Ogdensburg, N. Y., announces that steps have been taken to provide free mental dispensaries in various cities and villages in the St. Lawrence Hospital district, where free consultation, advice and treatment will be given by a mental specialist from the hospital staff to persons threatened with a mental breakdown or suffering from mental trouble. This movement is in line with recommendations of the New York State Commission, and is expected to be taken up by the other state hospitals. It is believed that by earlier discovery and treatment of mental disease many cases that would otherwise become chronic may be cured in the incipient stage.

Dr. John A. Pringle has been appointed superintendent of the St. Louis City Hospital, after receiving the highest award in a civil service examination held to fill the vacancy caused by the resignation of the former superintendent, Mr. Frank E. Chapman, who went to Cleveland, O., to take charge of the new Jewish Hospital in that city. Dr. Pringle is 28 years of age. He entered the St. Louis City Hospital not quite five years ago, as an intern, and gradually worked his way up to the head of the department of nervous and mental diseases, which position he held at the time of Mr. Chapman's resignation. He is a graduate of Washington University Medical School.

SOCIAL HYGIENE VENEREAL DISEASES

Conducted by WILLIAM F. SNOW, M. D.,
General Secretary, The American Social Hygiene Association,
105 West Fortieth Street, New York City.

The Genito-Urinary Department of the Brooklyn Hospital Dispensary

The genito-urinary department of the Brooklyn Hospital Dispensary was established in 1904. Its growth has been gradual and progressive, from one doctor attending two days in the week to thirteen doctors attending six afternoons and six evenings in the week. The organization is very simple in its component parts and can be shown in graphic form, each division being the same in all details. The chief of the department is the visible head of all work. To the patient he is consultant and to the staff he is instructor and critic. The day and evening clinics are directed by the same chief, so that each division becomes a distinctly separate unit in all details—staff, history file, contact with patient, etc. The afternoon service is free, except for fees of ten cents per visit, but for the evening service a charge of one dollar per visit is made, covering both treatment and medicine. The two divisions of the staff attend on alternate days, the same division being present both afternoon and evening on any day. This arrangement has been made in order to correlate as far as possible the free and pay services, so that patients whose circumstances lead to a change from one clinic to the other may remain under the care of the same physician.

The following simple rules have tended toward a distinct uniformity of method:

THE BROOKLYN HOSPITAL DISPENSARY

GENITO-URINARY DEPARTMENT

The full clinical staff shall consist of:

A chief of clinic, consultant.

A chief of division, director.

Clinical assistants, who shall rotate in service as follows: First, one month in laboratory; second, one month at history desk; third, in treatment rooms.

All treatment is to be controlled by the chief of division and by the historian.

All cases referred by the department of health and other sources must be acknowledged by the historian on the day of admission.

All cases must be entered in the journal of contagious diseases on day of diagnosis.

How the patient learned of this clinic should be ascertained and entered on the history sheet.

SYPHILIS

Full physical examination on first visit.

Wassermann reaction on all cases at beginning of treatment.

Wassermann reaction on all cases every tenth visit.

All cases diagnosed as chancroid must have a Wassermann test performed before being discharged.

GONORRHEA AND COMPLICATIONS

General examination at first visit, including a smear when possible.

Meatus smears should be taken at least once a month while there is a urethral discharge.

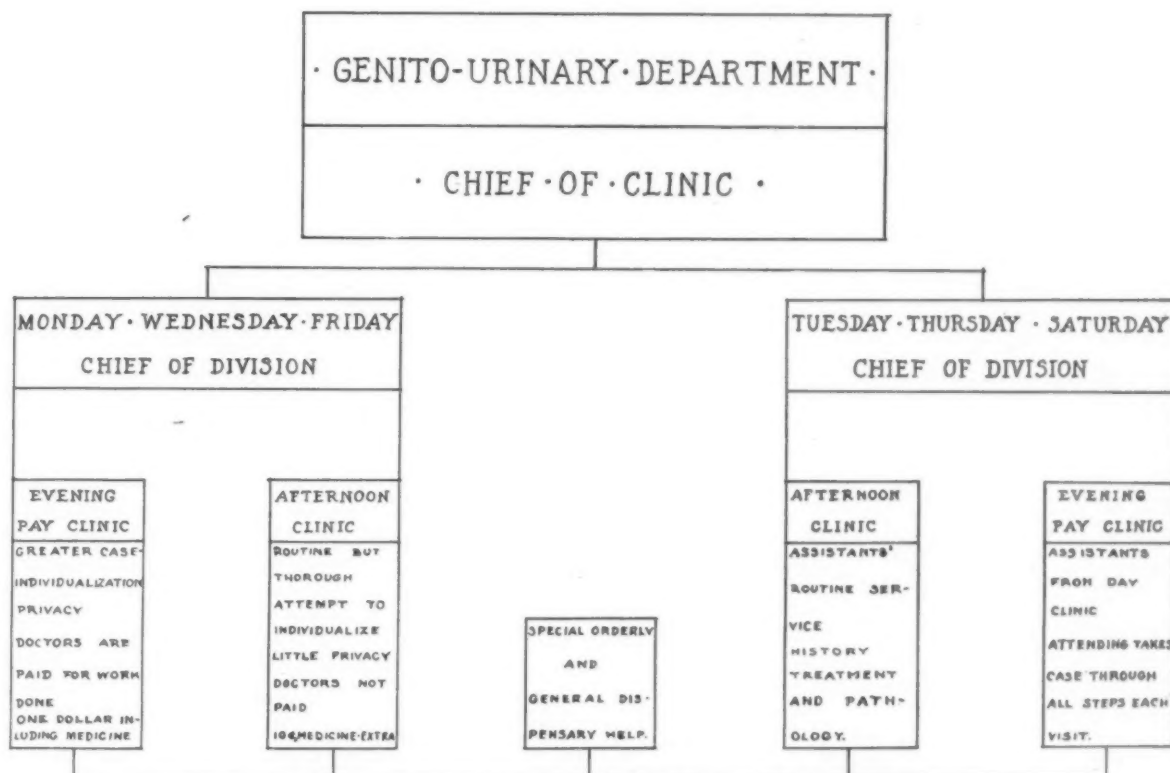


Fig. 1. Organization of the Genito-urinary Department of the Brooklyn Hospital Dispensary.

There should be a complete urethral and prostatic examination at the termination of acute symptoms.

Before being discharged as cured a patient's history must show at least three negative, monthly prostatic smears, a negative complement fixation test for gonococcus infection, a clinical cure, and a reexamination of the urethra.

Prostatic cases must have a smear of the expressed prostatic contents examined once a month, or oftener.

The printed history sheet should be completed in every case before discharge.

N. P. RATHBUN, M. D.,
Chief of Clinic.

These rules, as well as the requirements for the genito-urinary clinics, as adopted by the New York City associated out-patient clinics, are posted over the historian's desk.

When the patient, in his turn, enters the history room a complete history is taken, if it is the first visit, or the history reviewed, if it be a subsequent visit. At each visit the patient's story is noted by the historian and the required examination and treatment ordered by the chief of division. These orders are carried out in the treatment rooms and the results reported to and recorded by the historian, who then gives any necessary prescription.

The object in organizing a venereal clinic is twofold: (1) The proper treatment of the patients and the prevention so far as possible of reinfections and spread of the diseases to others; (2) the scientific study of the venereal diseases, the investigation and elaboration of methods for their treatment, and the training of workers in this branch of medical science. The clinic effectively operating on this basis becomes a valuable factor in the education and protection of the public.

The protection of the public demands the greatest obtainable control over the infected individual. This we endeavor to maintain by various methods. In order to keep control of cases until they are no longer a menace to the community we feel that something must be done to regain our control if the patient ceases attendance before being discharged as cured. To do this in the usual manner of

social service work is obviously difficult. Personal visitation is not practical unless under the direction of unusually qualified and tactful persons. In addition it is expensive. The use of a card, requesting a return visit, is simple, of modest cost, and, in our experience, efficient. The card reads as follows:

BROOKLYN HOSPITAL DISPENSARY Genito-Urinary Department Raymond Street and DeKalb Avenue Brooklyn, N. Y.	
Mr.	G-U No.
You are requested to return on or before	
You were not cured at your last visit.	
You need further treatment or observation.	
For your own good and the protection of others this card is sent you.	
Kindly answer this notice.	
If you do not return you will lose your privilege.	
Clinic Hours: 1-2 p. m. Pay Clinic Hours: 5-6:30 p. m.	
Tuesdays, Thursdays and Saturdays, Except Holidays.	
....., M. D.	

When the third card is sent to a patient it is stamped "YOUR LAST CHANCE." Frequently this does the work. We believe we have proved the value of this method during a six months' trial period. This sending of cards is not the very difficult procedure that it might appear. It takes but very little time and by means of a chart, upon which all visits are recorded, the historian can tell at a glance the status of all the cases in the active file. We have met with a very gratifying response to these cards in other ways than by revisits. We have had news of patients through friends, by telephone, and by mail. It is a remarkable fact that we have received not more than a dozen complaints in the ten months that this method has been in operation.

Each new case admitted to the department is presented with a copy of a ten-page pamphlet. The effort to drive

home our message by accent type, short sentences, common language, and the general arrangement has overshadowed any attempt at literary style. Translations of the pamphlet into Italian, Yiddish, and German now are being made. In addition to our own pamphlet the New York City Department of Health pamphlet on venereal diseases is distributed. During the course of a patient's treatment the Department of Health card on gonorrhea or syphilis is given and is a useful therapeutic measure. The patient must be inoculated with the stick-to-it-until-you-are-well idea. To do this demands constant advice and encouragement. The staff is urged to talk the idea. The door from the waiting room into the history room has a sign upon it, which greets the patient each visit with the information:

YOU MUST COME TO THE CLINIC REGULARLY FOR TREATMENT
 If You Have a Green Card If You Have a Yellow Card
 [Green Card] [Yellow Card]
 Come Every Wednesday Come Every Thursday
 For Syphilis For Syphilis
 Come Every Monday and Friday Come Every Tuesday and Saturday
 For Gonorrhea For Gonorrhea

DO NOT STOP TREATMENT UNTIL THE DOCTOR TELLS YOU THAT YOU ARE WELL

Variety is essential and change draws attention. A bulletin board 26 inches by 34 inches is therefore maintained in the waiting room. The basic matter upon it is always the same, but it is variously presented. The arrangement is under three general headings—Prevention,

as care of the teeth, cleanliness, diet, etc. It has seemed to us that cooperation with other bodies striving in the same field but with different parts of the work is the road leading to the greatest degree of success. Invasion of the domain of quackery by the department of health had been successful. We, therefore, with the cooperation of the Committee of Fourteen of New York City, offered to place the board of health sign plates in the saloon toilets in our territory. These plates as finally prepared read as follows (the department plate is blue and white and the hospital plate red and white):

VENEREAL DISEASES
 CONFIDENTIAL ADVICE
 REGARDING
 GONORRHOEA, SYPHILIS

AND
 SEX DISEASE
 CAN BE OBTAINED
 FREE
 AT THE
 DEPARTMENT OF HEALTH
 29 THIRD AVENUE
 9 A. M. TO 12 M. DAILY
 SUNDAYS AND HOLIDAYS EX-
 CCEPTED

AVOID
 ADVERTISING SPECIALISTS
 AND PATENT MEDICINES

¹The dispensary hours, 1 to 2 P. M., are for the patients who cannot afford to pay a fee.

BROOKLYN HOSPITAL
 RAYMOND STREET AND DE-
 KALB AVENUE
 MAINTAINS A CLINIC
 FOR
 THE TREATMENT OF MEN
 UNABLE TO AFFORD THE
 SERVICES OF A PRIVATE
 PHYSICIAN

DISEASES OF MEN
 DISPENSARY HOURS¹
 1 TO 2 P. M.

EVENING PAY CLINIC HOURS
 5 TO 6:30 P. M.
 A FEE OF \$1.00 IS CHARGED,
 WHICH INCLUDES MEDI-
 CINE AND TREATMENT
 DAILY EXCEPT SUNDAYS
 AND HOLIDAYS

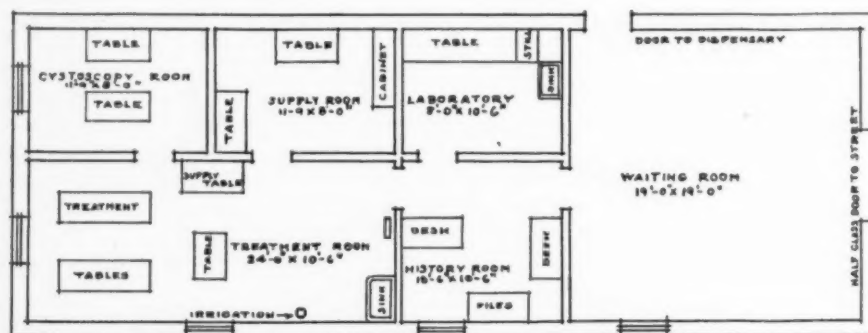


Fig. 2. Plan of the Genito-urinary Department of the Brooklyn Hospital Dispensary.

Syphilis, Gonorrhea. The notices posted under these headings are in various shapes, colors, types, and wordings. They are changed weekly and they are usually in easily understood and sometimes in common parlance. Under Prevention such signs as these are posted:

BOOZE
 is your worst enemy
 NOT A DROP OF LIQUOR
 WATER
 is your best friend
 USE IT FOR DRINKING AND
 FOR WASHING
 AVOID
 SEXUAL EXCITEMENT
 CUT OUT
 SEXUAL INTERCOURSE

Under the disease titles there are frequently posted the instruction sheets of other clinics than our own and of other departments of health than the New York City department.

In addition to the board itself we have two frames for notices which are hung on either side of the board. One is permanent and one is changed at intervals. The permanent notice reads:

THIS CLINIC WANTS TO HELP MEN
 WE HAVE A PAMPHLET
 EVERY PATIENT COMING HERE IS ENTITLED TO HAVE A
 COPY. THE DOCTOR WILL BE GLAD TO GIVE YOU AN
 EXTRA COPY IF YOU HAVE A FRIEND IN NEED OF HELP.
 SPEAK TO HIM.
 IN RETURN FOR WHAT WE ARE DOING FOR YOU ALL WE ASK
 IS THAT YOU STAY UNDER TREATMENT UNTIL YOU ARE
 WELL; THAT YOU DO AS THE DOCTOR TELLS YOU; THAT
 YOU DO YOUR PART IN KEEPING THE CLINIC ROOMS
 CLEAN AND OBEY THE RULES OF THE DISPENSARY.

The notices to be changed cover hygienic points, such

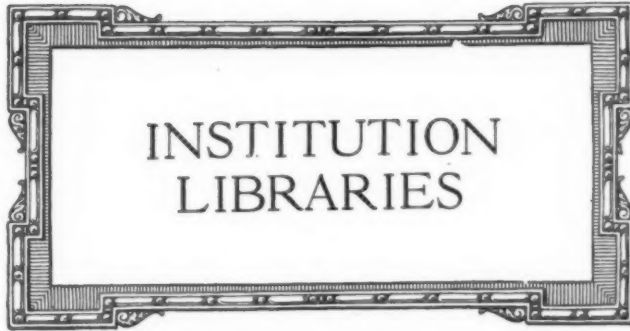
It is, as yet, too early to know what the result of this work will be. Thus far we have not experienced the criticism which some believed would follow. When our signs go up the quack signs come down! Cooperation with other societies, such as The American Social Hygiene Association, the Society for Sanitary and Moral Prophylaxis, of New York, as well as with business organizations in the territory about the institution, has been and will be of great value to us and to the community.

What does all this cost in time, in money, in energy? This we do not know, absolutely. In energy, it costs a great deal, but the return is ample. In time, our clinic work actually calls for an average of an hour and a half in the afternoon and two hours in the evening. The staff has to devote some time to the work out of hours, and this has been considerable during the organization period. In money, the cost of printing 5,000 booklets, 2,000 cards, 2,000 envelopes, 1,000 metal sign plates, totaled \$125.

The cost of maintaining the clinic during the three months—August, September and October—had been approximately \$465 for salaries and drugs. Rent, heat, light, instruments and repairs, and the usual incidental expenses of maintaining a general dispensary must be added, but do not constitute a large item and are partly covered by the excess of receipts over the combined outlay for salaries and drugs. The receipts from the patients for the same period have been:

Admission fee of 10 cents (day clinic).....\$120
 Charges for prescriptions (day clinic)..... 96
 Fees from pay clinics (this fee covers medicine and treatment)..... 450

No work such as this article has outlined can be judged without the passing of time. The question of pay clinics in the special branches of medicine and surgery is a vital topic that is in its infancy. Some adequate facility must be provided for each group of our population in need of special attention, including the small wage earner.



Institution Libraries League

Through the kindness and interest of the editor of THE MODERN HOSPITAL the Institution Libraries League has been offered a page in each issue, to be devoted to institutional library work.

This is what we have been striving for—some of us—for several years; official recognition of the importance to the whole hospital of a well-selected, organized and systematized library; and it is needless to say that the committee on institution libraries is very grateful, not only to THE MODERN HOSPITAL, but also to those hospital superintendents and other physicians who have been so cordial in their reception of this committee and in their endorsement of its work.

Now some of us have been in this work ten years or more. We have seen one hospital after another detach itself from the old shelf-and-book number and Sunday-school-and-attic-refuse class of reading, and branch out into centralized libraries with new books. Two states, Iowa and Minnesota, have library organizers, trained librarians appointed by the Board of Control in each state, whose sole business it is to develop practical libraries in all its state institutions; another state, Nebraska, has such an institution library organizer appointed by the State Library Commission. One very well-known alienist, for years connected with state and private hospitals in New York, visiting McLean Hospital in November, said that the influence of some of these libraries was becoming greatly apparent; that in his earlier state hospital experience, the libraries were the dullest, dreariest, most unusable collection of books that could be imagined, with no effort to interest patients in reading, make the rooms attractive, or to buy new books; that, however, all this is passing and the hospitals are waking up to the importance of the library. He heartily endorsed the efforts we are making for experienced librarians and organized libraries. Truly, things *are* moving, though sometimes the progress has seemed very slow. What can we do to hasten matters?

OUR SLOGAN

Library efficiency is what we all are aiming at. How can we best achieve it? Without exception, every hospital which has a thoroughly successful library is convinced that three things are essential: first, an experienced librarian, trained in the necessary technic; either one in each hospital or one efficient organizer and teacher for the state. Second, a classified and catalogued central library. Third, a definite annual appropriation, however small, for the purchase of carefully selected new books. These three essentials we are going to emphasize and keep before the minds of the hospital authorities.

The first essential, which, in a manner, includes the second, few hospitals have at present. May we not help you to find a librarian suited to your needs? We know the library schools and the college bureaus of occupations; we will be glad of the opportunity to put you in touch with

them. But if you are not able, for the present, to branch out so far as this, may we not help the untrained librarian who has charge of your books to a working knowledge of cataloguing and classification? A certain amount of machinery is necessary to any organization, and a machinist who knows how to use it.

S. O. S.

In return, we want your help. Let us confess it frankly—we are absolutely new to editorial work, and we do want to make this page a success—a real, practical help, an exchange of ideas, a mutual benefit association. Please tell us what you would like to find in this page.

Do you care for the book reviews? Then send us titles of some of the books your patients are particularly enjoying. Would you like a question box? Simple rules for cataloguing? A simplified classification in any department? Hints for charging systems? Help in the medical library? Bits of library gossip? Please let us know what you want.

We are planning a series of brief histories of certain movements, such as that of the state institution library organizers, and the development of some of the best hospital libraries in the country. Let us have an outline of the history of your library.

Then we want reports of your library for the year 1915: how many patients you have who read; how many books you have; how many you gave out; how much you spent for new books; and especially any little, personal, intimate items of your library; how you make your rooms attractive; whether you are getting your nurses interested in books, etc. You will make us very grateful if you will send questions, items or suggestions by the end of each month to Miss Jones, McLean Hospital, Waverley, Mass.

LIBRARY NOTES

Dr. William A. White, Superintendent of the Government Hospital for the Insane, Washington, D. C., writes of the League as follows: "Such a league should prove of great mutual benefit to the institutions comprising it. We have two libraries—the medical library and general circulating library. The latter has for its purpose the provision of good reading matter for the patients. These libraries are in charge of a librarian, who is assisted in the circulating department by a patient who has been interested in the work for some time and is very efficient."

At Bloomingdale Hospital, White Plains, N. Y., the librarian leads the hospital orchestra and choir in addition to her other work. They have a very good medical library in a pleasant room, and hope soon to move their ward books to the Administration House and have a central library. Miss Natalie Ashley, who resigned last summer, did some very excellent work here, which is being carried on by Miss Eliza A. Stearns, a Mt. Holyoke College graduate. Miss Stearns is about to classify their collection preparatory to moving it, and would be glad to hear from anyone who has any suggestions to offer. This hospital has an adequate book fund, and, therefore, a growing library.

Mr. Bernard F. Dromgoole, librarian at the State Tuberculosis Sanitarium, Carlsbad, Tom Green county, Texas, would like to be put into communication with others in the work of organizing and building up libraries in hospitals of this sort. Have other tuberculosis sanatoriums found it possible to have books, or do they confine themselves to magazines, which may be burned?

Rochester State Hospital, Rochester, N. Y., is about to purchase new books for its library. Mrs. Lester Ford, the librarian, asks for titles of books which have "hit the mark."

Miss Florence Waugh, formerly librarian for the State Institutions of Nebraska, was married in October. Her work will be carried on by Miss Nellie Williams, who has made an enviable record as a librarian.

Kalamazoo State Hospital, Michigan, is about to reorganize its library. There are 1,500 volumes in the collection, and the librarian, Mr. William C. Brigham, expects to classify them and put in a charging system of book cards and pockets. Mr. Brigham would be glad of any suggestions.

At Fergus Falls State Hospital in Minnesota plans are taking shape for removing the library to a large room to be used for library purposes only. The necessary equipment for a reading room will be added.

Miss Lucile E. Townsend has recently accepted a position in the State Hospital for Crippled Children at St. Paul, Minnesota. One of her duties will be the care of the library, for which her long experience in such work at Tarrytown, N. Y., makes her well fitted.

Will those connected with hospitals and homes for children send us lists of proved and approved books for the little ones to be published here?

One of our hospital librarians has written to Miss Carey asking for titles of books to read aloud. With all due modesty, we mention that an article on this subject is scheduled to appear in the January number of *The Nurse*, and reprints may be obtained from Miss Jones.

SOME OF THE NOVEMBER BOOKS

November and December are not very good months for books, as the publishers are busy getting out holiday editions. Moreover, the hospital and library appropriations are apt to run low about this time. For these two reasons this list is short, but it comprises three unusually good books, which should have been bought earlier, but were overlooked. One of these is *His German Wife*, by Douglas Sladen; a story of the outbreak of the war, which interrupts the honeymoon of an English army officer and his German bride on a visit to her relatives. The description of their escape from Germany and adventures in Holland are thrilling; there is no race hatred in the story, and a great deal of humor.

Eve Dorre, by Mrs. Strother, the second of these belated stories, is thoroughly delightful, with a dainty and charming little heroine and a capital bit of character drawing in her mother; the French setting, too, is most convincing.

The third of these books—*Why, Theodora!* by Miss MacConnell, I confess I turned from several times because I did not like the looks of the paper cover with its drawings of some ten or a dozen detached heads in all stages of shocked mirth. This cover, with the title, gives one the idea of cheap sensationalism, which the book itself does not warrant. Not since Mrs. Mary Heaton Vorse wrote *Heart's Country* has there been such a tender, sympathetic, thoroughly understanding story of those difficult years in a young girl's life when school is finished and she is waiting for life—life which is so slow in coming!—and love, which, to Theodora, comes not in the radiant, hero guise of her dreams, but with drooping wings trailing in the very sordid dust. Theodora is a dear.

Sinclair Lewis' *The Trail of the Hawk* is another story well worth while and out of the ordinary. The Hawk is a boy blest with imagination; he seeks romance and adventure and finds both in the excitements of aviation, in which he becomes one of the professionals—hence his name. There is a very pretty love story in this. Miss Johnston's new book, *The Fortunes of Garin*, is full of the color and incident of the Provence Courts of Love and the feuds of the end of the Middle Ages. *Hempfield*, by David Grayson,

contains much quiet humor and, like his other books, shows the romance that lurks even in the dullest country village.

Moonbeams from the Larger Lunacy is another of Stephen Leacock's deliciously funny effusions, no more to be analyzed than the taste of olives; if you like them, you do, and if you don't, you don't. *Dear Enemy*, in which Jean Webster carries on some of the characters of *Daddy-Long-Legs* and the John Grier Home, is a thoroughly enjoyable book, which we cannot, however, recommend for patients in the hospitals for mental diseases; there is too much about heredity, insanity and alcoholism, and consequent feeble-mindedness. It is too late to inculcate the principles of eugenics into such patients, and their feelings are harrowed enough, anyway. But as a book for well people it is charming.

In *The Gray Dawn*, Stewart Edward White continues the story of San Francisco which he began in *Gold*. In some ways this second book is a disappointment, until one grasps the idea that his characters are, most of them, simply types of the time, or puppets on which to hang the clothes and the manners of the period; that the city itself is his hero and heroine and the whole book.

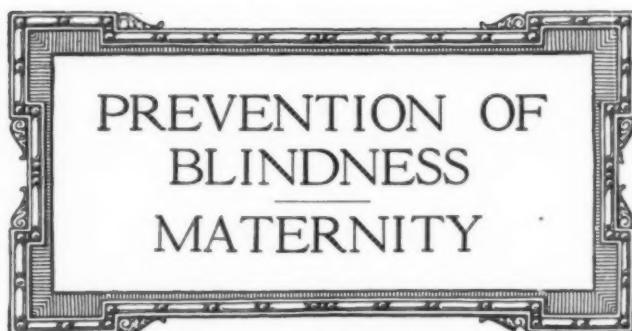
Sunlight Patch, by Credo Harris, is a tale of the Kentucky mountaineer seeking an education, which is "different." There is much humor and keen insight in Mr. Harris's delineations of the old darky servants, while Dale himself is a masterly-drawn sketch of a supreme egotist who thinks he is a superman.

One approaches Mrs. Andrews' story of the war—*The Three Things*—with something of the reverence which attaches to her story of Lincoln in *The Perfect Tribute*. In this latest book of hers, which is only a short story, the hero, with all of youth's enthusiasms and intolerances, rushes to France to fight on the side of the allies. Here in the trenches and in the hospital, he learns the snobbery of his three great prides—pride of class, pride of race and pride of intellect which, to him, means atheism—and he comes home with a shattered leg but a truer manhood.

Baroness Orczy has written a new Napoleon story in *The Bronze Eagle*, which, I am told, is breathlessly interesting and a sort of sequel to *The Scarlet Pimpernel*. Those who have enjoyed Richard Pryce's previous books, *Christopher* and *Jezebel*, will welcome this new one, *David Penstephen*. Mr. Pryce's novels belong to a high order of literature and of clean, wholesome stories. David is no less charming than Christopher.

A new home for St. Joseph's Hospital, Stockton, Cal., erected at a cost of nearly \$100,000, has just been opened. The building is a two-story and basement structure, with a roof garden to which a \$3,000 automatic elevator runs. The floor plan was laid out in four wings with the idea of obtaining the maximum amount of sunlight and fresh air. The mission type of architecture has been followed. There are six sun porches, having terrazzo floors and copper-screened duplex windows. These windows are used throughout the building. The fifty-eight rooms have sanitary enameled walls and double-acting silent doors. Eighty-five patients will be accommodated.

Miss Mary A. Bowen, superintendent of the Ann May Memorial Hospital at Spring Lake, N. J., for a year and a half, resigned that post early in the fall and spent several weeks touring the West, including a visit to the Panama-Pacific Exposition at San Francisco. Miss Bowen has recently taken up her residence with the Sisters of Mercy at Merion, Pa., preparatory to taking charge of the new Misericordiae Hospital in West Philadelphia, when it is opened in the near future. She is a graduate of Bellvue Hospital, New York City, and has had wide experience in hospital work. Miss Bowen was succeeded at the Spring Lake hospital by Mrs. May Green, R. N.



Conducted by CAROLYN CONANT VAN BLARCOM, R. N.,
Secretary National Committee for the Prevention of Blindness;
Chairman Committee on Prevention of Blindness and
Midwives National Organization for Public Health
Nursing.

Notes from Various States on the Prevention of Blindness

It is believed that readers of THE MODERN HOSPITAL will find it interesting to survey the present activities for the prevention of blindness which are being developed in various states throughout the country through investigation, legislation and widespread education. It is encouraging to the associations and state commissions which labor for this cause to note the increasing emphasis put on the popular presentations of the subject of prevention of blindness by the medical profession at their own and other meetings. Although a certain amount of legislation is necessary for the satisfactory prosecution of this phase of public health work, the movement as a whole rests upon a foundation of public education. Accordingly, it is gratifying to observe the rapidity with which this aspect of the work is developing.

ARKANSAS

This state has provided through its legislature a special appropriation to the School for the Blind for the purpose of spreading knowledge concerning the prevention of blindness. As a first step in this campaign of education, Superintendent John H. Hinemon has circulated 10,000 copies of a publication entitled "Needlessly Blind for Life," prepared by the New York State Committee for the Prevention of Blindness. He is also arranging to run educational matter in the country papers, by means of which at least one-third of the population of the state will be reached.

As trachoma is the principal cause of blindness among pupils in the Arkansas School for the Blind, special effort is being made to eradicate this disease from the state. An eight-page leaflet written by Dr. John G. Watkins, oculist and aurist to the school, describing the disease and giving general directions for prophylaxis and treatment, has been issued and is being widely distributed. Trachoma is now reportable in Arkansas.

CALIFORNIA

The ophthalmia neonatorum bill introduced by Senator Jones in the California legislature was passed and became a law by the signature of the governor early in June, 1915. The act provides for the definition of ophthalmia neonatorum, the reporting of it within twenty-four hours of its occurrence, and certain measures of prevention to be taken by the local health officer and the state board of health. The interests of this bill were in the hands of Dr. Glaser, of the state board of health.

The California legislature has also passed a vital statistics law, providing for the inclusion on the birth certificate of the question: "Was a prophylactic for ophthalmia neonatorum used? If so, what?"

The California Committee for the Prevention of Blindness, which is undertaking active work, has recently purchased from the National Committee fifteen exhibit panels dealing with the subjects of babies' sore eyes, midwives and wood alcohol.

ILLINOIS

The state health department has been provided with an appropriation, making possible the free distribution of silver nitrate outfits. In sending out a notice relative to these outfits the secretary of the state board of health says: "Attendants at births may secure these packages without cost, provided that they report all births attended by them, as required by law."

During the last session of the legislature the public health law was amended in such a manner as to provide for a more effective system of control of babies' sore eyes than was possible under the old statutes. The present law defines ophthalmia neonatorum as inflammation, swelling and redness of either or both eyes of the infant, either apart from or together with any unusual discharge of the eye or eyes at any time within two weeks after birth, regardless of the nature of the infection. The law further requires that such inflammation of the eyes shall be reported within six hours from the time when first seen.

A number of new laws have been passed which are directed toward accident prevention. The most important of these is the Workmen's Compensation Act. This is a comprehensive law, providing and specifying the minimum sum which shall be paid in the event of death or injury of the employee and defining the responsibility of the employer, amending the Acts of 1911 and 1913. While this law is of special interest from a social and industrial standpoint, it is also expected that it will increase the precautions taken against industrial injuries, many of which are to the eye.

INDIANA

During the last session of the legislature a law was enacted creating a commission for the blind, to concern itself with the industrial training and aid for the adult blind and also the prevention of needless blindness. The board of trustees of the State School for the Blind was appointed as the commission, and it will work in cooperation with the state board of health.

The Extension Division of Indiana University, in cooperation with the state board of health and numerous other organizations, has held two child welfare exhibits this year—at Indianapolis, February 13-26, and Evansville, April 20-28. At both of these exhibits a number of charts were displayed dealing with the prevention of blindness. The Indiana Society of Ophthalmologists had a booth and conducted a clinic, testing the eyes of a large number of children and consulting with the parents concerning treatment or correction.

KENTUCKY

The most serious problem confronting the Kentucky Society for the Prevention of Blindness is the control of trachoma, which is widely prevalent in the mountainous districts. So serious is the situation that the United States Public Health Service is giving its assistance and has established three hospitals where trachomatous patients may be treated.

A recently enacted law requires the state board of health, acting with the county boards of health and county medical societies, to conduct schools in each county at which attendance is made compulsory, for the instruction of physicians and midwives in the most approved methods in the prevention of blindness, especial attention being given to ophthalmia neonatorum and trachoma. These diseases are now reportable in Kentucky.

The state board of health is planning to send out in the near future 25,000 copies of an illustrated bulletin, which will go to physicians, state, city, and county officials, women's clubs, etc., explaining in detail the recent legislation in Kentucky dealing with the prevention of blindness in infants, and will also show in text and illustration some of the common causes of blindness and the means and methods of prevention.

In the city of Louisville the twelve nurses of the District Nursing Association recently adopted the admirable custom of inviting the midwives of their city, some thirty-five in number, to meet with them on frequent occasions to discuss their work. This kind of cooperation should prove to be a practical means of education and help materially in raising the standards and efficiency of the midwives.

Due to the efforts of Miss Linda Neville, secretary of the Kentucky Society for the Prevention of Blindness, the following plank will appear in the platform of the Republican party at the coming state election in Kentucky:

"14. For economic, as well as humane reasons, we recommend that the State of Kentucky undertake to supplement and later to continue the work of the United States Public Health Service for the prevention of blindness from trachoma, a communicable and painful disease of the eye, from which the last census report shows that 33,000 persons are suffering in a single section of this state."

Almost identical provisions have also been made in the platforms of the Democratic and Progressive parties of Kentucky, so that the continuity of the campaign now under the direction of the United States Public Health Service is practically assured, even after that body has deemed it necessary to withdraw from the field. It is interesting to note that this plank is the only one having to do with public health which is to be found in each of the three platforms mentioned.

MARYLAND

The Federation of Women's Clubs gave place on their program and considerable attention at their annual meeting this spring to the subject of prevention of blindness.

MASSACHUSETTS

The Massachusetts legislature has appropriated \$1,500 to enable the State Commission for the Blind to make a special study of persons whose eyesight is seriously defective or who are liable to become visually handicapped or blind; this work to include advice and cooperation as to suitable education for children of school age; vocational guidance and industrial aid in individual cases of adults and minors above school age, and study of similar work done in other states and countries.

Trachoma has been made reportable in Massachusetts.

MICHIGAN

A report from Michigan shows that 19 persons were saved from blindness during the year 1914 as a result of the activities of the Association for the Blind.

As chairman of the health and hygiene committee of the West Michigan State Fair Association, Dr. Collins H. Johnston, of Grand Rapids, secured from a number of health organizations exhibits for use at the annual State Fair in September. The entire exhibit of the National Committee for Prevention of Blindness was shown, and some seventy lantern slides bearing self-explanatory captions were thrown on the screen continuously day and night. Attendance at these state fairs is very large, hundreds of thousands of persons coming from all parts of the state to see the agricultural exhibits, races, etc. During recent years health authorities have been taking advantage of this opportunity to display effective popular

exhibits, and much direct good has undoubtedly been accomplished through this method of reaching the public.

MISSOURI

The Missouri Association for the Blind has done some effective preventive work, having persuaded the board of health to include ophthalmia neonatorum and trachoma among reportable diseases and also to follow up reported cases. In the past year they have cared for 167 cases of eye trouble. The secretary of the Association gave talks, illustrated by slides, before various clubs, state conferences, etc., and also enlisted the services of physicians in giving the same kind of talks before various organizations.

Kansas City has passed an ordinance making it obligatory upon attendants at birth to apply a solution of nitrate of silver to the eyes of every new-born child. A fine of not less than \$25 nor more than \$500 is the penalty provided for a violation of the ordinance.

NEW HAMPSHIRE

A law requiring the reporting of babies' sore eyes and providing for the after care of all reported cases was enacted by the New Hampshire legislature during the last session.

Dartmouth College, Hanover, has a foundation for a lecture each year to entering students, which covers the heredity and principal causes of blindness.

NEW JERSEY

The State Board of Health of New Jersey will cooperate with the State Commission for the Blind in an effort to prevent blindness by a stricter enforcement of laws; especial attention will be given to midwife registration; to regulating the sale and use of wood alcohol and to following up cases of eye trouble among infants.

NEW YORK

At the 1915 meeting of the New York State Medical Society held in Buffalo during the last week in April, an interesting innovation was the introduction into the program of five lectures on public health topics given by specialists. Two of the five addresses were on the subject of Prevention of Blindness and Conservation of Vision, and these drew the largest audiences of the session.

During its executive session the State Medical Society adopted resolutions endorsing the efforts being made by the New York State Department of Health and the Committee for the Prevention of Blindness, and urging local societies and academies of medicine to give their assistance in extending educational work concerning the cause and prevention of blindness and promoting the enforcement of laws bearing upon this subject.

At the instigation of the New York Committee for the Prevention of Blindness the Division of Laboratories of the New York City Department of Health is studying 1,000 cases of babies' sore eyes, and also following up 1,000 consecutive births, for the purpose of obtaining information on the following points:

1. The number of cases of babies' sore eyes occurring in 1,000 births.
2. The percentage of cases of sore eyes in which a prophylactic had been used; kind of prophylactic.
3. Percentage of cases of sore eyes in patients delivered by physicians; by midwives; in hospitals.
4. Day of life on which symptoms first appeared.
5. Whether symptoms were due to silver irritation or an infection; kind of organism present.
6. Nature and duration of treatment.
7. Comparative results of home and hospital treatment.
8. Comparative results among breast- and bottle-fed babies.
9. Frequency and seriousness of permanent damage.

From a report of the Division of Laboratories and Research, State Department of Health, July, it is learned that 3,236 of the prophylactic outfits for ophthalmia neonatorum were distributed during the month of May, 1915, as compared with 474 for the same month in 1914. The July, 1915, report shows a distribution of 4,998 outfits during that month.

The New York State Department of Health has recently amended its sanitary code to include provisions for the control of midwives. Upon request, the New York State Committee for the Prevention of Blindness submitted recommendations, which were adopted in substance, and comprise the following:

1. The licensing of all women who call themselves midwives, in order that they may be brought under the supervision of midwife inspectors.
2. After January 1, 1915, the issuing of licenses to those women only who shall have attended fifteen maternity cases and nursed fifteen lying-in patients, under the supervision of a physician—this pending the enactment of laws empowering the Board of Regents to examine and license midwives, and regulate midwife training schools.
3. The adoption of rules and regulations which will limit the work of midwives to attendance upon normal cases only, and nursing of mother and child, these rules and regulations to be enforced by a practical system of supervision which will tend to improve the work of the midwives.

The study of midwifery conditions in Buffalo has been included in a general health survey which is being undertaken in that city under the auspices of the local health department. Upon the recommendation of the New York Committee for the Prevention of Blindness this work is to be of a continuous nature, providing for sustained midwife inspection. Steps have already been taken to adopt a definite system of control, modeled as nearly as local conditions would permit, on the English system of midwife regulation. That is, improvements will be made as the findings of the study show the need, and totally unfit midwives will be eliminated, while those capable of doing acceptable work will be improved through training and instructive supervision. The department of health has delegated a nurse to carry on the work of inspection and to follow up all reported cases of babies' sore eyes.

Attention of druggists in New York City has been called to the provisions of the Sanitary Code prohibiting the use of methyl alcohol (wood alcohol) in any toilet or medicinal preparation for internal or external use, and to the necessity of properly labeling all containers of methyl alcohol. The department of health is strictly enforcing this section of the sanitary code.

At the last annual meeting of the New York State Pharmaceutical Association the question of the wood alcohol label was discussed, and resolutions were adopted requesting the members of the association and druggists in general to make use of the poison label on wood alcohol, which the State Pharmaceutical Association would formulate.

More than one hundred children from the New York public schools were taken during the summer to the Trachoma Summer Camp, located in Orange county, where, with the exception of two or three cases, these children returned almost completely recovered. There is now no danger that these children will lose their sight either wholly or in part from trachoma. The whole experiment, costing about \$3,000, was financed by contributions secured by a leading newspaper. Nearly \$1,000 worth of property, consisting of tents, cots, blankets, cooking utensils, etc., is now in the hands of the managers of the enterprise, to be used next year as the nucleus for a bigger camp. This work has grown out of a small experiment

conducted by the Division of Laboratories of the New York City department of health and the New York Committee for the Prevention of Blindness, when 24 trachomatous school children were sent to the country in the summer of 1911 for the purpose of supplementing local medical treatment by improved hygienic surroundings.

NORTH CAROLINA

At the annual meeting of the North Carolina State Medical Society in June initial steps were taken for a campaign of education on prevention of blindness and conservation of vision.

At the instigation of Principal Ray, of the School for the Blind of North Carolina, an act was passed by the General Assembly looking toward the prevention of blindness among infants. The act requires that a 1 percent solution of nitrate of silver be administered immediately upon birth.

Dr. McBrayer, in an address, recommended the appointment of a committee on conservation of vision, in order that further constructive work for prevention of blindness in North Carolina might be carried out through educational and legislative action, and it was proposed that the committee attempt to secure the active cooperation of the board of directors of the State School for the Blind.

OHIO

In this state the Commission for the Blind is strongly supported by an advisory committee of ophthalmologists. Under their direction representative men of the profession have spoken on the subject of prevention of blindness to over 20,000 people throughout Ohio during the past twelve months.

The commission is continuing its newspaper service for the small newspapers outside of the large cities, a kind of work which it has been doing for several years. This service is carried on through the press associations and is eagerly sought by the newspapers of the state.

Toledo has opened a school for myopic children. This makes the third school of that character established in this country, the first being in Boston and the second in Cleveland. Books specially printed in heavy faced large type are used for reading, but most of the instruction is given orally.

In the Cincinnati public schools the following special provisions are to be made for pupils with weak eyes: segregation; half shades for windows; woodwork and desks mat finished; cream colored ceilings and upper parts of walls, buff walls from molding to blackboard, dark brown from chalk trays to floor; scientific artificial lighting; written work on large or desk blackboards; text-books printed in 36-point (one-half inch type) on glazed, buff tinted paper; typewriting by the touch method.

Because of an appropriation of \$5,000 for the specific purpose of providing nursing service for the prevention of blindness, under the direction of the board of health, Ohio will have a corps of ten or more public health nurses supported by the state engaged in sight-saving work.

In Cleveland there is noticeable a more general recognition of the real danger of sore eyes. There has been a steady increase in the number of eye cases reported since the work was started in May, 1912, at which time there were six patients, while in May, 1915, there were 1,071.

OKLAHOMA

"Save the Eyes" was the keynote of a series of addresses delivered from July 6 to 16 at the summer school at Norman for the benefit of teachers assembled there, as well as members of the State Optometry Association, who

were expected to attend. The addresses were under the auspices of the State University.

TENNESSEE

The last session of the Tennessee legislature enacted a law for the prevention of blindness from ophthalmia neonatorum, requiring physician, nurse or midwife to use either a 1 percent solution of silver nitrate or a 15 percent solution of argyrol in the eyes of infants immediately after birth. Failure to comply with the provisions of the law is a misdemeanor punishable by fine and imprisonment.

Seven years ago 33 percent of the annual births in Nashville were attended by midwives. Through the careful weeding out of unfit midwives by prosecution when necessary, Dr. W. H. Hibbett, health officer, has reduced this proportion to 10 percent.

It is expected that the next constructive work for prevention of blindness and care of the blind in Tennessee will be the appointment by the governor of a state commission, the members of which will investigate the needs of the blind, make such provision as may be possible, and suggest action and necessary appropriations to the next legislature.

TEXAS

An educational campaign for the prevention of blindness has been conducted by the Texas Congress of Mothers and parent-teacher associations since the fall of 1914. Many addresses have been given by men prominent in the medical profession on the subject of prevention of blindness as well as the betterment of the condition of the blind.

VERMONT

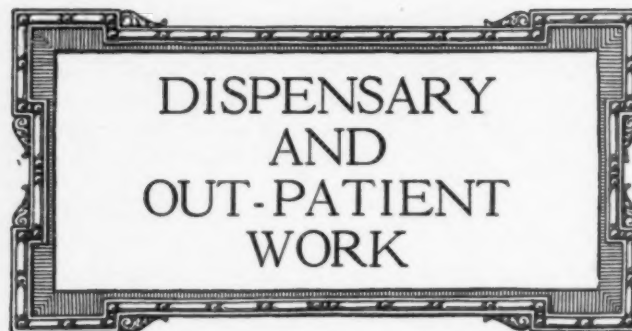
Fourteen persons recently died in Bristol as the result of drinking whiskey adulterated with wood alcohol, which they had purchased from a druggist. The druggist asserted that he ordered and thought he was using cologne spirits.

IN GENERAL

Widespread and effective educational work is being conducted by women's clubs throughout the country under the direction of the public health department of the General Federation of Women's Clubs. The National Organization for Public Health Nursing has a committee on prevention of blindness and midwives, through which it is endeavoring to create deeper interest among nurses and promote practical sight-saving work by the members of this profession. The Children's Bureau at Washington includes instructions for the care of babies' eyes in one of its bulletins, and through cooperation with the National Committee for the Prevention of Blindness is giving invaluable assistance in educational work.

The most widespread and comprehensive educational campaign in this country concerning the causes of unnecessary blindness is being carried on by Dr. Frank Allport, chairman of the committee of conservation of vision of the American Medical Association. Dr. Allport's admirable plan is to have each county medical society throughout the country include upon its program some time during the year at least one paper on the prevention of blindness, and in addition to this to encourage its members to speak upon this phase of public health work before lay audiences in every community, such as women's clubs, Y. M. C. A.'s, parent-teacher associations and school children.

A continuation of the efforts being made by these various organizations to spread broadcast practical information concerning the care of the eyes should spell success for this important and appealing movement.



Conducted by MICHAEL M. DAVIS, Jr.,
Director of the Boston Dispensary.

The First Decade of Dispensary Social Service

It is just ten years ago since medical social service began in an organized way in the United States when the social service department of the Massachusetts General Hospital started at the initiative of Dr. Richard C. Cabot; and the Massachusetts General Hospital's social service department has just celebrated the close of its first ten years by a series of meetings.

Until a few months ago this social service department was confined solely to the out-patient department of the institution. Organized medical social service began in the dispensary; not in the hospital wards, so that an account of its tenth anniversary well deserves place in this department.

HISTORY OF THE FIRST SOCIAL SERVICE DEPARTMENT

At a meeting on December 2, Dr. Richard C. Cabot reviewed the chief steps in the development of the social service department since its beginning in 1905. That year one paid worker, Miss Katharine Pelton, was started informally under Dr. Cabot's personal direction. The next year a step forward was made after the initiative of some of the physicians in the hospital, notably Dr. John B. Hawes, in developing the class method for dealing with tuberculosis. Groups of patients, presenting a common problem, are gathered together for the educational work needed to insure that the treatment is carried out. This class method has since had considerable development in many institutions, not only in tuberculosis, but in other diseases. For example, there have been formed groups or "classes" for educating diabetes patients and keeping diet and hygiene under control. Also "classes" for cardiac cases, and for delicate children, who need to be kept under supervision and whose mothers need to be taught how to feed them properly.

In 1908 the social service department of the hospital received the great accession of Miss Ida M. Cannon, who has been in charge since that year. Meanwhile social service was developing at other institutions, in Boston, and in many other cities, so that at the present time there are some 150 hospitals and dispensaries with organized social service. In New York City alone there are said to be 32 such units, with from one to thirty-one salaried workers.

Further landmarks of the development of this historic social service department, said Dr. Cabot, were the beginning of efficiency tests, in 1911, following the lead of the Boston Dispensary and the establishment of social workers in intimate contact with the out-patient clinics, also initiated at other institutions. The former system had been to keep the social workers in a separate office, taking only such cases as were referred to them by the doctors. The new plan made their services of much wider use to the physician, the clinic administration, and to the patients. About the same date special work for the handi-

capped started, finding places in industry suitable for those crippled in limb or otherwise. This work also has been widely extended.

In 1913 another great field was tapped when, under the leadership of Dr. David L. Edsall, industrial diseases were taken up by a special social worker, in conjunction with the physician. In 1915, the present year, the Massachusetts General Hospital itself has taken a step forward by creating the position of Director of Social Service, and appointing Miss Cannon to the post. Previously only a little social work had been carried on in the hospital wards, and this under separate and independent management. Hereafter all social work in the two great divisions of the hospital will be administratively united.

"HUMANIZING THE INSTITUTION"

Such was the title chosen by Homer Folks for his address at the anniversary meeting above referred to. Mr. Folks was formerly Commissioner of Charities in New York City, with eleven large hospitals under his direction, and for many years has been secretary of the State Charities Aid Association of New York. The movement for hospital social service, said he, is only one illustration of a general trend towards making institutions more in touch with the community as a whole. When a sick man who enters a hospital goes out again he must take up his life anew. The hospital's responsibility is not only that he should be able to leave its doors, but that he should be connected up with his community again. The hospital's care of a patient is only one stage in the continuous process of the individual's life. Hospital social service and hospital follow-up systems have grown out of a recognition of this truth. In other fields the same principle has had remarkable illustrations in recent years, said Mr. Folks. In reformatories the parole and probation system has connected up the discharged inmates with the rest of the community, started them in families, or secured them jobs, instead of simply turning them loose on discharge from the institution. The probation officers correspond to the hospital social workers. Again, children's aid societies are now placing children out in good family homes, instead of keeping them permanently in institutions away from the community, or turning them adrift after they have passed the institution's age limit. Also very notable has been the progress in penology. Much has been done, especially in the West, to humanize prisons and assist prisoners in finding places again for themselves in the community. The analogy of these illustrations with hospital work will be apparent to every superintendent

ORGANIZATION OF DISPENSARY CLINICS

Formerly the out-patient clinic had just a doctor and a prescription pad. Now the organization of a medical clinic, for instance, is incomplete without doctors, laboratory worker, nurse or trained attendant, social worker, and often clerks in addition. One of the recent interesting developments in dispensary work is the utilization of persons who are neither doctors, nurses, social workers, nor clerks. The desire to make clinics more efficient has led to the realization that there is a large amount of detailed executive work necessarily incident to handling many patients. At the Massachusetts General Hospital out-patient department clinic secretaries have been introduced. The duties of these clinic secretaries include the details of getting patients in to the doctor, when the doctor wants them; of seeing if the patients understand what is said to them, and that they are clearly instructed as to what they are supposed to do; to receive answers or prefer inquiries, etc., and countless other details which otherwise take the time

of trained technical people. In some other institutions the duties mentioned have been divided among a paid clerk, and either a nurse or social worker, often assisted by one or more volunteers, but volunteers have not been given any primary executive responsibility. Whether or not permanent detailed work can be secured from volunteers is a question which only time can answer. But without doubt there are in any large dispensary clinic a mass of detailed tasks which need doing, and which, if done, increase greatly the medical and social efficiency of a clinic; and it has also been proven that for many of these duties the services of volunteers can be made use of. It is a good thing for the dispensary to have volunteer workers under proper conditions. The exact manner in which they are utilized will of course vary with circumstances in each locality.

Another type of service in certain clinics is now rendered by persons who may be called therapeutic assistants. In the classwork with the tuberculosis or diabetes patients previously referred to, the doctor soon finds that many specific explanations as to diet, hygiene, occupation, etc., must be given to each patient; that each must be treated as an individual, and that it is quite impossible for the doctor himself to perform all these details. In some classes, volunteers, and in others, professionally trained assistants are employed. Where the task is chiefly to see that the doctor's instructions are understood, and to assist and report as to their execution, volunteers can well be employed. In proportion as much social work, or technical instruction, is necessary, trained nurses or social workers must be the doctor's primary dependence, and the place of the volunteer, while by no means abolished, becomes secondary.

The utilization of such functionaries as clinic executives, secretaries, clerks, therapeutic assistants, etc., is of especial interest, as an illustration of the rapid development of technic in out-patient organization. The effort to make dispensaries efficient in treating patients as well as in diagnosing disease will doubtless lead to many further specializations of functions.

A new home for the Aurora Hospital, Aurora, Ill., which has been in course of construction for the last year, has been completed and is being equipped. It is a four-story and basement fireproof structure, 125 by 42 feet. The new hospital will be opened about January 1.

In mentioning the opening of the hospital at Fort Sill, Okla., erected by the government for the benefit of the members of various tribes of Indians on reservations in southwestern Oklahoma, the *Tulsa World* remarks that the older Indians, who still cling to their superstitious fears of the white "Medicine Man," stand at a distance and gaze in awe at the new structure. Some of the old tribesmen, according to the *World*, refuse to go near the hospital. The younger Indians, however, understanding what it means, are pleased with the building and take great interest in it.

Assisted by members of the Society for the Prevention of Tuberculosis, the California State Board of Health has completed the draft of a bill, that will be introduced before Congress by a California solon, which asks for the Federal subsidization of all hospitals in the various states that care for non-resident, indigent tubercular patients. To receive this subsidization a hospital will be required to meet certain specifications set by the Federal health officers. According to a law enacted by the last California legislature all county hospitals within that State are subsidized \$3.00 per week for the care of resident indigent patients.

QUERIES AND ANSWERS

Care of Battleship Linoleum

To the Editor of THE MODERN HOSPITAL:

Do you know of any preparation that is being used by the hospitals to preserve battleship linoleum? If so, will you please send the formula or answer through the Query and Answer Department of THE MODERN HOSPITAL?

PIEDMONT SANATORIUM,
Atlanta, Ga.

Dr. Joseph B. Howland, assistant administrator of the Massachusetts General Hospital, replies to this inquiry as follows:

We use the formula given below, and we treat battleship linoleum in the same manner as we do a polished wood floor. A short string mop, an old one cut down to about three inches in length, is used to apply the polish; then it is heavyweighted. The first part of the heavyweight work is done with just the heavyweight and finished with a flannel cloth under the weight.

On a new floor the polish is applied every day for a week before occupying, if possible, and then followed up once a week. We wash the floors only when the wards are being house-cleaned. Soap and water remove the polish and the same process has to be followed as stated above. Soiled spots, not removed by the polish, are taken off by application of turpentine on a small vegetable brush.

As turpentine is a cleansing medium, we do not think it necessary to use soap and water, except as above stated. We would suggest that only a thin film of the polish be used on floors.

FLOOR POLISH

5 gallons turpentine	}	blend in a steam jacketed kettle.
30 ounces paraffin		
20 ounces yellow wax		

Add one ounce of ammonia water to each pint after the mixture has cooled. Without ammonia water the floor polish is rather gummy.

Relations of Interns and Nurses

To the Editor of THE MODERN HOSPITAL:

What is the most satisfactory management of the social relation between interns and pupil nurses? Is absolute forbiddance of any social relations preferable to having them meet socially in the nurses' home or permitting them to go together to theaters, dances, etc., under the same conditions as are permitted to young men not connected with the hospital?

MATRON.

There is a great difference between hospitals in the handling of the relations between interns and pupil nurses. It is the experience of veteran hospital administrators and a good many heads of training schools that it is utterly impossible to keep these young people apart, and that it is far easier to control their relations than it is to forbid any relations between them.

It seems almost conceded that the best way to do is to put these young people on their honor, to demand their obedience to the rules of discipline in the hospital, which should provide that their relations while on duty should be

restricted to business and then outside of the duty hours to permit them certain social relations, which must be controlled and guided by the matron of the nurses' home in conjunction with the administrator of the hospital, who is supposed to have control of the interns. The writer of this reply has always been accustomed to state specifically to new interns upon their entrance to the hospital what he expected in regard to their relations to the pupil nurses, and the statement usually took this form: "You young gentlemen are going to meet constantly, and in an intimate way, a number of young ladies who happen to be pupils in the training school; there is no disposition on the part of the hospital to interdict social relations between you, but every young man coming into this hospital as a medical officer will be placed on his honor in this regard; if you desire to call upon one or more young women in the training school you have the privilege to do so in their home and amid their social surroundings, and in accordance with the rules laid down for their conduct by the matron of the home and the superintendent of the school. If you wish to invite these young ladies to go with you to a place of entertainment or recreation at any time, when the rules of the institution will permit their going, you have permission to do so, and it is only expected that you will invite them to no place of entertainment where you would not be willing for your own sister to go with another young man; it is expected that as young professional men, who have seen more of the world than these young ladies have, and who must know the rules of society in regard to the conduct of young ladies, you will protect them in every way just as you would expect your own sister to be protected if she were situated as they are."

In the experience of this particular administrator, this rule of honor was never violated but once, and the intern in the case was dismissed from the institution summarily.

Where interns and pupil nurses are absolutely forbidden to hold social relations with each other, and where they are kept constantly under surveillance to see that this rule is obeyed, the young people are very likely to challenge the rule and to match their wits and skill against the authorities and get together under far less propitious conditions than if unrestricted relationship, on honor, were permitted.

The Colquitt Hospital Law of Texas

To the Editor of THE MODERN HOSPITAL:

Can you tell me just what the Colquitt law is? We have a small new hospital, and at the end of the first year find ourselves \$2,300 in arrears, and I am wondering if there is anything in that law that can be used to help us out of our dilemma.

DECORAH HOSPITAL,
Decorah, Iowa.

The Colquitt law of Texas is fashioned after the Iowa law introduced in the legislature by Dr. E. E. Munger, of Spencer, Iowa, five years ago and passed at the same session. The Iowa law provides that counties may construct and operate general hospitals, and permits county authorities to levy a tax up to a certain amount for the purpose. At the first election after the Iowa law was passed, Washington and Jefferson counties voted to tax themselves for county hospitals, and the Washington County Hospital was built at Washington and the Jefferson County Hospital was built at Fairfield. No other counties voted in favor of the law at that time; but a number have since come in under the law and have either built or are building county hospitals under its provisions.

A number of the states, ten in all, followed Iowa and passed similar laws, each one of them making it optional with the county to create such hospitals. The Texas legislature then governor, making it mandatory on counties of over

20,000 to build and operate general hospitals and compelling them to tax themselves for the purpose. Those hospitals are now being built all over Texas. The difference between the Texas law and the others is that the Texas law compels the counties to build and conduct these hospitals, whereas the other states permit the counties to do so on a vote of the people.

The Colquitt law specifies what classes of cases shall be cared for in these hospitals, viz., medical, surgical, gynecological, obstetrical, children, tuberculosis, and the communicable diseases.

The Colquitt law provides that counties of less than 20,000 population may join with other counties, taxing themselves pro rata to help pay for the hospital's construction and operations.

It doesn't seem possible that a privately owned and conducted hospital could have any benefits from either the Colquitt law or the Iowa form of law; but it would seem possible that if the people of your county chose to do so the county authorities might take over your hospital on some agreed arrangement and operate it as a county hospital under the Munger law. Undoubtedly the attorney-general of your state could tell you whether this would be possible, and if so you could then approach the proper authorities in the county to handle the matter. It might be said that the two hospitals in Iowa operating under this law have demonstrated the success of the principle and are doing a wonderful amount of good for the people intended to be served.

LETTERS TO THE EDITOR

Corrections About "Bedlam" Hospital

To the Editor of THE MODERN HOSPITAL:

I have read with much interest the article in your October issue entitled "The Most Famous Hospital in the World—Old Bedlam."

You pay very just tribute to a most excellent and interesting story told by the hospital chaplain, Rev. Edward Geoffrey O'Donoghue, in his book, "The Story of Bethlehem Hospital from Its Foundation in 1247." The story of Bethlehem Hospital, its name shortened in modern times to Bethlem, and from remote times corrupted to Bedlam, reads in many places like a romance, in others like a sad tale of suffering, ignorance, superstition, and often brutality and corruption, which, continuing for page after page, is depressing to a degree.

Sufficient is known, however, of the historical facts connected with the hospital, and the story is plainly enough told to permit a correction of the mistakes which have crept into the pages of THE MODERN HOSPITAL—mistakes which are quite clearly due to hasty reading of Rev. O'Donoghue's story.

There is no evidence in the reference to the procession of Henry III from St. Paul to Westminster Abbey, on page 16, that the procession passed near St. Botolph's Bishopgate. It would have been a very roundabout way for the procession, and the sentence in the second paragraph clearly shows that "the incense arose about and the holy water fell upon the land given by Simon Fitz Mary the sheriff" during a procession of ecclesiastics ten days after the progress of the King from St. Paul's to Westminster. This, however, is a small detail, as is the statement that "Dickens' conception of Sairey Gamp and Betsy Prig was formed from what he learned of the attendants at Bedlam," for which "The Story of Bethlehem Hospital" gives no authority.

Henry VIII followed the example of his predecessors in farming out the patronage of Bethlem to favorites, but did he do much worse, in view of the practices and intelligence of his times, than the governors of some of our own states who appoint political favorites to the medical superintendencies of state hospitals and expect them to distribute the minor appointments as local politicians shall dictate? In the end he gave the hospital the royal charter under which it is governed today, and his act was the beginning of better things for the hospital—better things, to be sure, only attained after long years of much that was deplorable in the management of the institution.

I wonder where your reviewer got the impression that George III was ever a patient at Bethlem. He says: "Perhaps the most eminent patient that Bedlam ever had was George III, who groped his way in blindness about its halls for years after having lost the American Colonies, and who was removed from the famous hospital only to be allowed to die in Windsor Castle."

The author of "The Story" says specifically, "For the last ten years of his life George III was confined in Windsor Castle, and there he died January 29, 1820."

George III had his first attack in 1762; a second in 1765 and a third and more prolonged attack in 1788. At this time so loth was the court to associate the King's malady with anyone even connected with Bethlem that Dr. Thomas Monro, then associated with his father at Bethlem, who was called in consultation, retired because of this prejudice. Other attacks followed, and, as has been seen, the King died insane.

The King was never at Bethlem. Those who are interested in the story of the King's attacks will find in Dr. Isaac Ray's contributions to mental pathology a very readable account. He omits, however, any mention of the attack in 1762, placing the first attack in 1765.

Dr. Ray's account first appeared in the *American Journal of Insanity* for July, 1855.

I trust that these corrections, which are not made in any spirit of captious criticism, will be received in the spirit in which they are sent, and that they may serve to call attention again to a most interesting and valuable work, "The Story of Bethlehem Hospital."

EDWARD N. BRUSH.

The "Twig" Movement in Hospital Support

To the Editor of THE MODERN HOSPITAL:

Early this fall, it seemed to the executive committee of the lady board of directors of the Ohio Valley General Hospital at Wheeling, that while the Woman's Hospital Association, of which they were the executive heads, reached a large number of influential women of the city, the organization was not growing—had stood at about two hundred and fifty members, paying their annual fee of \$1.00, for several years—and that while each one of these members was interested more or less, had assisted in the card parties, plays, donation days, tag days, etc., and had raised in support of the hospital some \$11,000 within the past three and one-half years, yet the younger women of the city were not interested, were not using their talents in support of the hospital, which is the largest and most popular charitable institution of the city.

So, having in mind the very successful operation of the auxiliary organization of the Rochester General Hospital at Rochester, N. Y., known as the "Twigs," their plan of operation was obtained and with some adaptations used in the organization of the General Hospital "Twigs" here.

The plan in short is this: An auxiliary is formed, composed of as many "Twigs" or branch circles as may be useful to the hospital. Each "Twig" (a "Twig," because too

small to be a "branch") is composed of from ten to twenty young women, neighbors, of similar tastes and acquaintanceship. Meetings are at the homes of the members. Each "Twig" is given a specialty; to manufacture an article or provide entertainment, or in some other way assist the hospital.

At the beginning, the hospital provides those "Twigs" which agree to sew with the necessary material for the manufacture of such things as tea towels, bath towels, dressing towels, table linen, tray cloths, curtains, dresser covers, baby slips, diapers, binders of various sorts, ward night shirts, pneumonia jackets, etc. Each "Twig" is furnished with a pattern, specifications, and a sample article already made up. These articles are given out through a central committee (under the direction of the hospital housekeeper), which is responsible for the manner of their making. If the work is not up to standard, it is returned to that "Twig," with the request that it be done exactly according to specifications. This prevents any odd sizes, or the articles being made according to the taste of the individual. They must be made according to the hospital standard. Next year it is expected that each "Twig" will purchase its own material, of course through the hospital stores department.

Not all the "Twigs" are manufacturers; some are entertainers and send their members to the hospitals to entertain the children in the wards, or read to old patients, or to provide some entertainment in the way of basket-weaving, modeling, crocheting, etc.

Every second Wednesday is set aside as "Twig" day, and every other afternoon social function must make way for or be absorbed by the "Twig" meeting. At these meetings a letter is read from the superintendent of the hospital giving some interesting incidents, and telling of the usefulness of their work.

This movement has, first, meant a backing for the hospital morally, and second, a support financially. Where before there may have been criticism because of lack of knowledge, now, because it is the popular thing, everyone is boosting for the hospital.

We believe in publicity. We believe that the more the public comes to know about the hospital and its work, the more they will be in sympathy with it, and the better supporters they will make. This is especially necessary in a small hospital, where the endowment fund amounts to little or nothing, and it will not hurt an old-established and well-endowed hospital, because it broadens the line of effort and gives the institution a greater opportunity.

PLINY O. CLARK.

Dr. S. Lewis Ziegler, director of Philadelphia's department of public health and charities, recently appointed twenty-five prominent women to constitute a woman's advisory council in connection with the city's municipal hospitals. The women will have general charge of the charitable phase of the work at the Philadelphia General Hospital and the Hospital for Contagious Diseases, and will look after the comfort of the inmates of the homes at Byberry and Holmesburg.

The excavation for a \$100,000 orthopedic hospital to be erected by the House of St. Giles the Cripple, Brooklyn, N. Y., has been completed. The building will be a modern fireproof structure 92 by 46 feet and four stories high, with accommodations for forty-six patients. Ludlow & Peabody, New York City, are the architects.

Miss Adeline Henderson, for the last eight years superintendent of the training school of the New York Hospital, New York City, died at the hospital, November 24, of anemia.

THE USE OF WASHED GAUZE

Massachusetts General Hospital Finds Great Saving in Cleaning Used Material—Method Must Be Thorough

Up to 1904, at the Massachusetts General Hospital, it had been customary to destroy all gauze which had been soiled by blood or pus, and we believe that this was the rule at all hospitals, although some had made an attempt to recover the gauze from their clean cases. In October, 1904, with the consent of the visiting staff, a process of washing and sterilizing all gauze was adopted, and its success has exceeded our expectations.

In the first eight months of 1904 we used over one hundred and forty miles of gauze three feet wide. During a like period of 1914, ten years later, a hundred and eighteen miles were used. An idea of what our "new gauze" purchase would have been had we not reclaimed "used gauze," we would state that one hundred and eighty-four miles of "washed gauze" has been put to use in the first eight months of 1914. The money expended for gauze during the first eight months of 1904 was \$4,366.52, while in 1914 during the same period the expenditure was \$3,610.54, a saving of \$755.98, though one hundred and sixty-two miles more were actually used.

The method is as follows:

All gauze and bandages from ward dressings, amphitheater, out-patient department and operating rooms (except the dressings used on precaution cases, as anthrax, tetanus, gas bacillus; or "Scharlach R" stained gauze), are placed in covered galvanized iron pails, and a collector from the laundry force gathers them twice a day, leaving a clean pail in the place of the one removed. The same man sorts the gauze, transferring it from the pails to mesh bags made of cord, being careful that the bags are only half filled. The gauze is kept in these bags throughout the rest of the process of washing and laundry sterilization.

It is allowed to soak over night in *cold water*; the water should be changed several times. The following morning the bags are put in an iron washer, capable of resisting steam pressure up to ten pounds. They are then rinsed in *cold water* until the water returns perfectly clear. The gauze is then washed with *warm water*, soap and sal soda, using enough soap to make heavy suds. After this washing, it is rinsed in *hot water*. After the rinsing, enough hot water is turned into the washer to cover the bags as they lie on the bottom of the washer. Steam is then turned on to a pressure of ten pounds, which is maintained for a period of one-half hour. Following this laundry sterilization, the gauze is washed again with the addition of one pail (twelve quarts) of soft soap, followed by three rinsings, two hot and one cold. During all these washings the washing machine is moving with its to-and-fro motion, which continually agitates the gauze and subjects every portion of it to the action of the steam and water. A self-registering thermometer placed in the gauze twice showed a temperature of 239° and 240°. The thermometer which registered on the outside of the washer showed a temperature of 236° at pressure of ten pounds.

After washing the gauze is put in an extractor, and after extraction, *while damp*, it is sent to the out-patient department, where it is inspected under the direction of an intelligent maid. It is untangled and straightened, and the maid is instructed to throw out any piece of gauze which is stained or has anything adherent to it. The gauze is again handled by nurses, or supply room maids, and is cut to suitable sizes and placed in packages for the last sterilization. These women also have instruction to look the gauze over carefully for any stained pieces or

any with foreign matter adherent. The final sterilization is then done at a temperature of 250° F., with a pressure of fifteen pounds.

Bandages are stretched and rerolled by the supply room maids. It is interesting to note that almost all the bandages used in the out-patient department are of "used" gauze excepting about ten pounds a year.

It has been found that washed gauze is softer and more absorbent than the new gauze. Repeated tests, conducted in the pathological laboratory, have shown the safety of the process. The overhauling and the straightening of the washed gauze involves a considerable amount of labor, and were it necessary to hire additional people to do the work the saving would be much less. In our large out-patient department we must of necessity have a certain force of messenger boys and maids when the clinic is running to full capacity. Much of the time all this force is not required, and when not busy in the clinics or occupied cleaning the buildings their time is utilized on the gauze work.

So much for the gauze, which is recovered and utilized again as gauze. There is a part which is in too small pieces or is too badly tangled to be worth straightening. This material is run through a rag picker and becomes a very light and absorbent lint, which is sterilized and supplied for dressings where absorbent material is ordinarily utilized. It is used also in the boiler house in the place of waste for wiping around the engines. Another part of the gauze is discarded because it is stained with chemicals. These pieces are utilized by the house cleaning force.

This process of gauze reclamation means not only less gauze bought, but less absorbent cotton, as well as less waste for the engine room. All pieces of compress cloth, many of which have been thrown away in the past, are now washed and sterilized by the same method, used over again if large enough or run through the picker if small.

FREDERIC A. WASHBURN, M. D., Supt.

Brought Down to Date by Eugene Walker, M. D.

New York's Care of the Aged

The Department of Health, through its Division of Institution Inspection, has completed a survey of the various Homes for the Aged in Greater New York. The following speaks well for provision afforded the old people of the city:

"We are glad to report that out of the forty-six institutions devoted exclusively to the care of the aged, not a single one was found concerning which serious complaint could justifiably be made.

"The buildings of brick or stone were in every instance of adequate size, and with the exception of four, surrounded by ample grounds. The ventilation, plumbing, lighting, heating and sewage were satisfactory.

"The furnishings in all the homes were found to be adapted to the needs of the inmates. The kitchens were well equipped, the sleeping and dining rooms comfortable and commodious. There were iron bedsteads with hair and cotton mattresses. The supply of bed and table linen, towels and soap was sufficient for the demands of hygiene and sanitation.

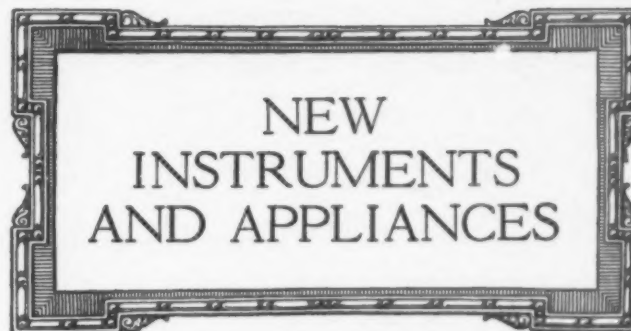
"The food was found to be well cooked and well served. The supply of help throughout was adequate, and the housekeeping was invariably well done—in many instances exceptionally well done.

"It was pleasant to observe the excellent accommodations for the sick. These included treatment rooms, large or small, as required, always pleasant and well ventilated and provided with all necessary sick room supplies. Competent nurses were in attendance and skilled medical services were provided.

"The bathing and toilet facilities of the institutions were found to be as follows:

- 1 bathtub for 1 to 5 inmates—6 institutions.
- 1 bathtub for 5 to 10 inmates—9 institutions.
- 1 bathtub for 10 to 15 inmates—11 institutions.
- 1 bathtub for 15 to 20 inmates—10 institutions.
- 1 bathtub for above 20 inmates—10 institutions.
- 1 toilet for 1 to 5 inmates—12 institutions.
- 1 toilet for 5 to 10 inmates—21 institutions.
- 1 toilet for 10 to 15 inmates—10 institutions.
- 1 toilet for over 15 inmates—3 institutions.

"There is, of course, always room for improvement. Suggestions have been and will still be made. In some instances isolation facilities might well be increased, and in others more toilets and bathrooms are needed; again, more thorough screening against flies would often increase the comfort of the inmates. Altogether, however, the institutions visited provide excellent care for the aged of this city."



VINCENZ MUELLER, Technical Editor.
GEO. W. WALLERICH, Associate Editor.

Device for Treatment of Fractures

BY DRS. F. W. PARHAM AND E. D. MARTIN

The instrument illustrated here has been in the market for some time, but it seems that until lately it has not received the attention it really deserves.

During the meeting of the Clinical Congress of Surgeons in Boston recently, these instruments were used with great success at the clinics that were given in several of the large hospitals during the week. The method was highly recommended by the surgeons in Boston, who have used it for some time.

The construction of the instrument is very simple, and the same is true of the technic. While the method is



Parham-Martin's bone banding instrument.

applicable in most types of fractures, it is especially valuable in cases of oblique fracture.

The outfit consists of four parts only—a slotted bar of steel eight inches long and one inch wide, a threaded steel rod, with large knurled screw, and a band of soft steel about six inches long and from one-eighth to three-sixteenths inches wide.

After the fragments of the bones have been brought into apposition, the band is bent at a suitable angle and passed around the bone with its narrow end; then is slipped through the slit in the widened part at the other end, and attached to a pin at the bottom of the threaded rod. By turning the knurled screw at the top, the band is slowly but surely tightened, and sufficient force can be

exerted to make it fit snugly around the uneven bone. In order to fix it in position the instrument is turned over and the band is bent back over the slit, then cut with a strong pair of scissors or with the bone forceps.

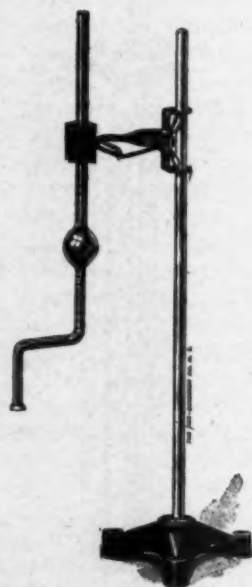
An ordinary small pair of tinners' shears would, however, be more suitable for the cutting of the band, as it will prevent the spoiling of the surgical scissors or the bone forceps and consequently will be less expensive in the long run.

The Stalagmometer

Traube has devised an instrument called the stalagmometer whereby the concentration or density of liquids can be determined with accuracy by means of capillary analysis or surface tension.

This instrument, it would seem, should find practical and efficient application in the pathological laboratory as an aid in the diagnosis of certain diseases, such as cancer of the stomach, the ovaries, pyloric stenosis, cirrhosis of the liver, tuberculosis, typhoid, etc., by this means following their progress from day to day.

Traube and Blumenthal have shown that normal stomach contents and that of slight digestive disturbances averages between 118-126 normal drops. On the other hand, in the presence of more serious affections, for instance, carcinoma, pyloric stenosis, etc., the number of drops of the freshly examined stomach contents have almost invariably been considerably increased, that is, from 126 to 150. In the absence of bile such a high count, therefore, suggests some serious disease.



Traube's stalagmometer.

Numerous urine examinations have shown that normal urine and pathological urine secreted by actively functioning kidneys, averages from 102 to 115 drops. But as soon as the kidneys cease to functionate well—nephritis showing peptone, cirrhosis of the liver, cancer of the ovaries, severe pneumonia, cancer of the gallbladder, etc.—it has been observed that the drop number is increased from 115 to 140. Daily examinations often give valuable information as to the progress of the disease.

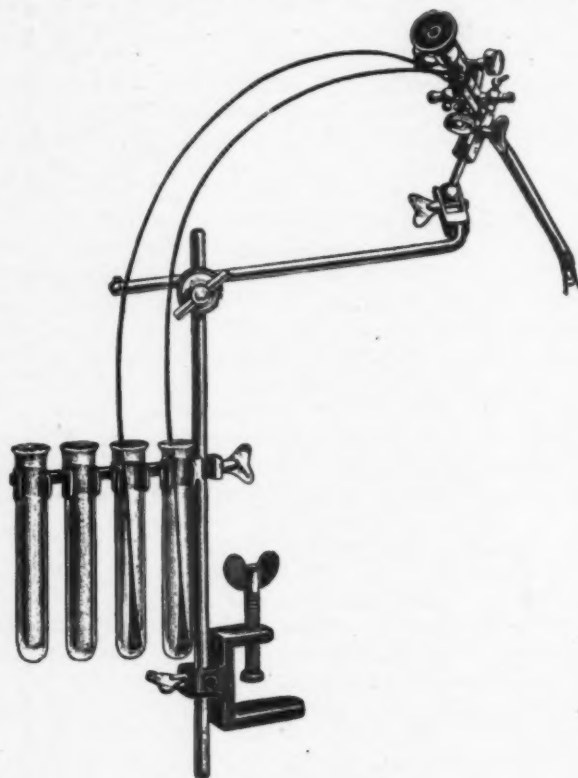
Capillary analysis may also be profitably employed in the examination of fresh blood, for while normal human serum averages from 109 to 112 drops, in the presence of uremia, these numbers were found increased to 116 or 118.

The invention of the stalagmometer has made it possible to determine exactly the degree of concentration even when only very minute quantities of capillary-active substances are present, not only in watery solutions, but in solutions containing considerable admixtures of capillary-inactive substances as well.

Dr. Louis Friedman's Cystoscope Holder

Cystoscope holders are made either in the form of a floor stand or to be attached to the examining table. They are usually either too heavy or too bulky for supporting a light instrument like a cystoscope, while some are complicated and clumsy.

Dr. Louis Friedman, of New York, has had made by the Wappler Electric Co. a cystoscope holder which is extremely easy to manage, simple in construction, light and



Friedman cystoscope holder.

strong, and will hold any kind and size of cystoscope in any position desired. It is attached to the table or to the leg-holder rod. During cystoscopy it can be swung out of the way when not wanted and is not in the way when in use because of its small size and compactness. It holds the cystoscope in a steady position while urine is being collected from either kidney; it is very useful when one has to work without assistance and particularly convenient and practical for demonstration purposes, as the cystoscope stays exactly where placed, so that the field in the bladder under observation can be studied at leisure.

There are other practical uses for the cystoscope holder which will suggest themselves to the urologist. For instance, cystoscopic photography is being more frequently done. In this work it is of course essential that the cystoscope be held without the least movement. For such work the holder should prove invaluable.

The Physicians' and Surgeons' Hospital Association, Denison, Tex., has recently been incorporated, with Drs. E. L. Seay and T. J. Long, among others, as directors.